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## **CHAPTER 3.0**

### **EXISTING CONDITIONS**

This section describes the existing environmental setting of the BSA, including the regional context of the lagoon, vegetation communities, plant species, wildlife species, rare and sensitive plant and wildlife species either known or potentially occurring in the BSA, jurisdictional waters, and wildlife corridors. The information provided in the following sections is based upon results of AECOM surveys conducted in 2010 and 2012, review of existing studies, and literature research. Detailed information relevant to each section is provided as an appendix, where appropriate.

#### **3.1 VEGETATION COMMUNITIES**

Vegetation communities are assemblages of plant species that usually coexist in the same area. These vegetation communities also provide habitat for wildlife species. The classification of vegetation communities is based upon the life form of the dominant species within that community and the associated flora. Descriptions of these vegetation communities and other cover types are provided in the following discussion. Three generalized categories are being used to characterize and discuss the land cover types observed during vegetation community mapping: riparian and other wetlands, uplands, and other cover types. Within these three categories, 10 riparian and wetland communities, six upland communities, and three cover types were delineated during the spring 2010 and 2012 field surveys (Figure 3-1). The acreages of each vegetation community and cover type within the BSA are provided in Table 3-1.

Vegetation communities and other land cover types classified as “sensitive” within this report were determined by applying the following regulatory context. Guidance for determining sensitive vegetation communities is provided by the resource agencies, including CDFW, and CNPS, as well as supporting documentation such as the CNDDDB. These federal, state, and local agencies and related publications are typically in concurrence on the classification of sensitive vegetation communities and other land cover types. For example, vegetation communities or other cover types that are considered potential U.S. and state jurisdictional areas typically result in the vegetation community or nonvegetated area being considered sensitive. For this proposed project, these waters are regulated by Sections 401 and 404 of the Clean Water Act (CWA), Sections 1600 et seq. of the California Fish and Game Code, and the Porter-Cologne Water Quality Control Act. Additionally, the occurrence of suitable habitat for special-status plant and animal species also raises the sensitivity of a vegetation community. Biologically, the vegetation communities that provide the highest habitat values within the BSA are the structurally diverse riparian communities and the native upland communities.

**Table 3-1**  
**Vegetation Communities and Other Cover Types within the Survey Area (Acres)**

| <b>Vegetation Communities and Other Cover Types</b> | <b>Coastal Area</b> | <b>West Basin</b> | <b>Central Basin</b> | <b>East Basin</b> | <b>Total</b> |
|---|---------------------|-------------------|----------------------|-------------------|--------------|
| <b>Riparian and Wetlands</b>                        |                     |                   |                      |                   |              |
| Coastal Brackish Marsh                              |                     |                   | 6.1                  | 125.4             | 131.5        |
| Coastal Salt Marsh – High Littoral Zone             |                     | 0.8               | 0.7                  | 118.5             | 120.0        |
| Coastal Salt Marsh – Mid Littoral Zone              |                     | 16.7              | 121.3                | 3.4               | 141.4        |
| Coastal Salt Marsh – Low Littoral Zone              |                     | 1.5               | 11.8                 |                   | 13.3         |
| Disturbed Wetland <sup>1</sup>                      |                     |                   |                      | 1.1               | 1.1          |
| Open Water (Tidal Channels & Basin)                 | 1.5                 | 4.3               | 23.7                 | 10.6              | 40.1         |
| Saltpan/Open Water                                  |                     |                   | 1.5                  | 35.4              | 36.9         |
| Sandbar Willow Scrub <sup>1</sup>                   |                     |                   |                      | 9.0               | 9.0          |
| Southern Willow Scrub <sup>1</sup>                  |                     |                   | 14.4                 | 47.0              | 61.4         |
| Tidal Mud Flat/Open Water                           |                     | 13.8              | 49.25                |                   | 63.1         |
| <b>Subtotal Riparian and Wetlands</b>               | <b>1.5</b>          | <b>37.1</b>       | <b>228.8</b>         | <b>350.4</b>      | <b>617.8</b> |
| <b>Uplands</b>                                      |                     |                   |                      |                   |              |
| Coyote Bush Scrub                                   |                     |                   |                      | 7.5               | 7.5          |
| Diegan Coastal Sage Scrub                           |                     | 3.1               | 67.0                 | 108.0             | 178.1        |
| Diegan Coastal Sage Scrub / Chaparral               |                     |                   | 27.7                 | 21.6              | 49.3         |
| Eucalyptus Woodland                                 |                     |                   | 15.7                 | 3.4               | 19.1         |
| Nonnative Grassland                                 |                     |                   |                      | 33.0              | 33.0         |
| <b>Subtotal Uplands</b>                             | <b>0</b>            | <b>3.1</b>        | <b>110.4</b>         | <b>173.5</b>      | <b>287.0</b> |
| <b>Other Cover Types</b>                            |                     |                   |                      |                   |              |
| Beach   | 15.0                |                   |                      |                   | 15.0         |
| Coastal Strand                                      |                     | 5.0               |                      |                   | 5.0          |
| Developed (Berm Roads)                              | 3.0                 | 5.2               | 10.4                 | 4.9               | 23.5         |
| Disturbed Habitat                                   |                     | 2.5               | 6.7                  | 2.6               | 11.8         |
| <b>Subtotal Other Cover Types</b>                   | <b>18.0</b>         | <b>12.7</b>       | <b>17.1</b>          | <b>7.5</b>        | <b>55.3</b>  |
| <b>TOTAL</b>  | <b>19.5</b>         | <b>52.9</b>       | <b>356.3</b>         | <b>531.4</b>      | <b>960.1</b> |

Disturbed wetland, sandbar willow scrub, and southern willow scrub are combined into a riparian vegetation community when discussing impacts and alternatives.

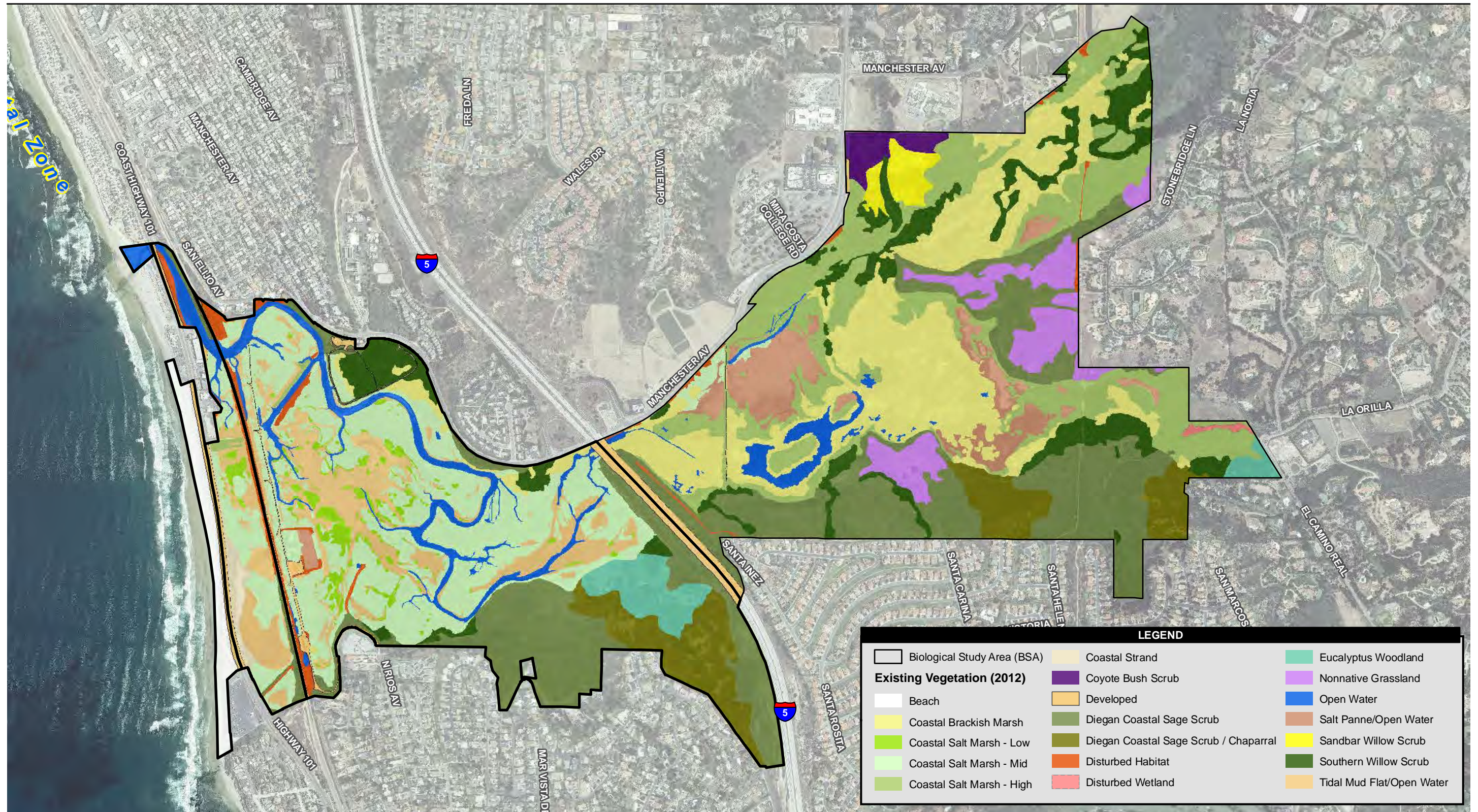
### **3.1.1 Riparian and Wetland Vegetation Communities**

Open water, marsh, and riparian scrub are considered sensitive by the County (2009). All riparian and wetland habitats are considered sensitive due to extensive historical losses of wetlands nationwide and the value of these habitats for sensitive species and wildlife movement. Riparian areas usually harbor greater wildlife diversity and abundance than upland areas and frequently serve as wildlife corridors due to their linear nature and the cover they provide.

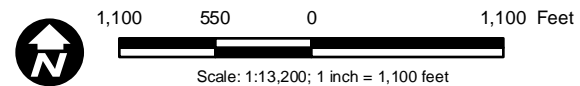
#### **Coastal Brackish Marsh**

Coastal brackish marsh is dominated by perennial, emergent, herbaceous monocots to 2 m tall (6 feet). Coastal brackish marsh is similar to both freshwater marsh and salt marsh, with some





Source: SANDAG 2012; AECOM 2014



**Figure 3-1**  
**Vegetation Communities within the Survey Area**



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plants characteristic of each. Salinity may vary considerably and may increase at high tide or during seasons of low freshwater runoff or both (Holland 1986).

Coastal brackish marsh is most extensive in the eastern half of the BSA. Dominant plants within this community include California bulrush (*Schoenoplectus californicus*) and Olney's bulrush (*Schoenoplectus americanus*), with these species forming pure stands more characteristic of freshwater marsh in some areas. However, salt marsh species, such as Pacific pickleweed (*Sarcocornia pacifica*), alkali-heath (*Frankenia salina*), Parish's pickleweed (*Arthrocnemum subterminale*), and salty susan (*Jaumea carnosa*) are dispersed throughout the coastal brackish marsh in varying degrees of abundance.

In the eastern half of the BSA, this community appears to be converting to freshwater marsh due to the greater input of freshwater from Escondido creek and the restricted tidal influence.

### **Coastal Salt Marsh**

Southern coastal salt marsh is an association of herbaceous and suffrutescent, salt-tolerant hydrophytes that form a moderate to dense cover and can reach a height of 1 m (3 feet). Most species are active in summer and dormant in winter (Holland 1986). Coastal salt marsh plants are distributed along distinct zones depending upon such environmental factors as frequency and length of tidal inundation, salinity levels, and nutrient status (MacDonald 1977). In the higher littoral zone, there is much less tidal inflow, resulting in lower salinity levels, while soil salinity in the lower littoral zone is fairly constant due to everyday annual tidal flow (Adam 1990).

Within the different littoral zones, species can be segregated with California cordgrass (*Spartina foliosa*) nearest the open water in the low-littoral zone; Pacific pickleweed and saltwort (*Batis maritima*) in the mid-littoral zones; and a richer mixture of species, including alkali-heath and Parish's pickleweed, in the higher littoral zone (Holland 1986). Other characteristic species include coastal saltgrass (*Distichlis spicata*), alkali weed (*Cressa truxillensis*), and salty susan.

Within the western portion of the BSA, mid-littoral coastal salt marsh is most expansive, with small islands of California cordgrass (low-littoral salt marsh) dispersed throughout. High-littoral salt marsh is most prevalent in the eastern portion of the BSA.

### **Disturbed Wetland**

Disturbed wetlands are communities dominated by exotic wetland species. These species have invaded sites that had been previously disturbed or are periodically disturbed. Disturbed wetland

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is restricted to a small area in the far southeastern corner of the BSA and is dominated by the nonnative species, mousehole tree (*Myoporum laetum*).

## **Open Water**

This habitat type consists of any open water body including lakes, reservoirs, bays, flowing water within a river channel, and small ponds along stream courses. Open water bodies provide important habitat for a variety of aquatic organisms and water fowl.

Open water is dispersed throughout the BSA in the form of tidal channels and small basins.

## **Saltpan/Open Water**

Saltpans are unvegetated to sparsely vegetated flat, alkaline areas near the coast that are subject to tidal influence. In coastal areas, saltpans are most often associated with salt marsh habitat. While saltpans can cover relatively large areas, they often occur in a mosaic pattern with more densely vegetated areas within the salt marsh. The paucity of vegetation on saltpans is apparently due to seasonally high soil salinity levels that prevent colonization by perennial salt marsh species. However, the open substrate associated with saltpans is available for colonization by short-lived annual species after winter rains temporarily reduce salinity levels (Ferren et al. 1987).

The saltpan habitat is most expansive in the eastern half of the BSA, dispersed between southern coastal salt marsh and coastal brackish marsh. The saltpan habitat is completely submerged during high tide.

## **Sandbar Willow Scrub**

One area in the northeastern portion of the BSA appears to have been graded in the past and is now being colonized by sandbar (= thin-leaved) willow (*Salix exigua*) and arroyo willow (*Salix lasiolepis*). Left unaltered, this community may eventually mature into southern willow scrub.

## **Southern Willow Scrub**

Southern willow scrub is a densely vegetated riparian thicket, dominated by several willow species (*Salix* spp.), with scattered emergent western cottonwood (*Populus fremontii* ssp. *fremontii*) and western sycamore (*Platanus racemosa*). This community is generally greater than 6 m (20 feet) high and occupies drainages and floodplains supporting perennially wet streams. Understory species such as mulefat (*Baccharis salicifolia*), Douglas mugwort (*Artemisia*

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*douglasiana*), and hoary nettle (*Urtica dioica* ssp. *holosericea*), may also be present (Holland 1986).

Southern willow scrub is encountered throughout the BSA. Dominant species include arroyo willow, red willow (*Salix laevigata*), and Goodding's black willow (*Salix gooddingii*). Common understory species include mulefat, tarragon (*Artemisia dracunculus*), and coyote brush (*Baccharis pilularis*).

### **Tidal Mudflat/Open Water**

Tidal mudflats are coastal wetlands that form when mud is deposited by tides or rivers. Most of the sediment within a mudflat is within the intertidal zone, and thus the flat is submerged and exposed approximately twice daily. Mudflats are typically important regions for wildlife, including invertebrates and migratory birds.

The tidal mudflats are mostly surrounded by mid-littoral coastal salt marsh and restricted to the western portion of the BSA. The tidal mudflats are completely submerged during high tide.

### **3.1.2 Upland Vegetation Communities**

Many upland vegetation communities are considered sensitive because they provide valuable nesting, breeding, and/or foraging habitat for special-status wildlife species. In addition, some upland vegetation communities such as coastal sage scrub are rapidly in decline due to development. Unlike riparian corridors, which are linear (in association with riverine systems), upland habitats typically form a large matrix and provide a broad variety of species structure and composition. Dense sage scrub vegetation or dense-canopied woodlands provide useful habitat and movement corridors for wildlife. Coastal sage scrub, coastal sage scrub/chaparral, and nonnative grasslands are considered sensitive by the County (2009).

### **Coastal Strand**

Coastal strand is an area of loose to partially stabilized sand that forms near the shore above the high tide line. The plants found in this community are able to tolerate harsh conditions, such as high winds, salt, and a low nutrient supply. Many of the plants in this community have deep taproots and/or a prostrate growth form to help stabilize them in the loose sand.

The coastal strand community is found in the western portion of the BSA just east of Highway 101. Dominant plants within the coastal strand community include arrow weed (*Pluchea sericea*), beach evening-primrose (*Camissonia cheiranthifolia* ssp. *suffruticosa*), beach sand-

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verbena (*Abronia umbellata* var. *umbellata*), Nuttall's lotus (*Lotus nuttallianus*), and coast woolly-heads (*Nemacaulis denudata* var. *denudata*).

### **Coyote Brush Scrub**

Coyote brush scrub is typically found on disturbed sites or those with nutrient-poor soils (Oberbauer 2008).

Coyote brush scrub is only found in the northeastern portion of the BSA and is heavily dominated by coyote brush.

### **Diegan Coastal Sage Scrub-Coastal Form**

Diegan coastal sage scrub may be dominated by a variety of different species depending upon site-specific topographic, geographic, and edaphic conditions. California sagebrush (*Artemisia californica*) is more dominant in coastal forms (Oberbauer 2008), but it often occurs with various codominant species. There are several recognized subassociations of Diegan coastal sage scrub based upon the dominant species. Typical Diegan coastal sage scrub dominants include California sagebrush, California buckwheat (*Eriogonum fasciculatum*), laurel sumac (*Malosma laurina*), black sage (*Salvia mellifera*), lemonadeberry (*Rhus integrifolia*), and California encelia (*Encelia californica*).

Within the BSA, Diegan coastal sage scrub is the dominant upland plant community and is most prevalent along the southern boundary of the BSA.

### **Diegan Coastal Sage Scrub/Chaparral**

Diegan coastal sage scrub/chaparral is a mix of chaparral and sage scrub species. Chamise (*Adenostoma fasciculata*) and coastal sagebrush are dominant and relatively equal in cover. Generally, laurel sumac, black sage, and lemonadeberry are more common in coastal sage scrub, while lilac (*Ceanothus* spp.), scrub oak (*Quercus* spp.), and mission manzanita (*Xylococcus bicolor*) are more common in chaparrals (Oberbauer 2008).

The Diegan coastal sage scrub/chaparral community within the BSA occurs along the southern border on both sides of I-5.

### **Eucalyptus Woodland**

This community is dominated by several species of eucalyptus (*Eucalyptus* spp.). These introduced species produce large amounts of leaf and bark litter, the chemical composition of



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which may inhibit the establishment and growth of other species, especially natives, in the understory. Generally, these species were planted for aesthetic and horticultural purposes, but many species of eucalyptus have become naturalized and have been quite successful in invading riparian areas.

The eucalyptus woodland communities within the BSA are found along the southern border and are dominated by river red gum (*Eucalyptus camaldulensis*) and blue gum (*Eucalyptus globulus*).

### **Nonnative Grassland**

Nonnative grassland generally occurs on fine-textured loam or clay soils that are moist or even waterlogged during the winter rainy season and very dry during the summer and fall. It is characterized by a dense to sparse cover of annual grasses, often with native and nonnative annual forbs (Holland 1986). Typical grasses within the region include ripgut grass (*Bromus diandrus*), red brome (*Bromus madritensis* ssp. *rubens*), soft chess (*Bromus hordeaceus*), wild oats (*Avena* spp.), and fescue (*Vulpia myuros*). Nonnative disturbance-related annuals, such as red stem filaree (*Erodium cicutarium*) and horseweed (*Conyza canadensis*), are common to this community. Though named as a nonnative community, nonnative grassland often has significant biological value since it typically supports native grassland species, such as tarweed (*Deinandra* spp.), common goldfields (*Lasthenia gracilis*), blue dicks (*Dichelostemma capitatum* ssp. *capitatum*), and purple owl's-clover (*Castilleja exserta* ssp. *exserta*); provides foraging habitat for raptors; and often supports sensitive wildlife species.

Nonnative grassland occurs in the eastern portion of the BSA.

#### **3.1.3 Other Cover Types**

##### **Beach**

Beach habitat is the flat, sandy area along the immediate coastline that occurs between mean tide and the foredune, or to the farthest inland reach of storm waves. This habitat is characterized by high exposure to salt spray and sand blast, and sandy substrate with a low organic content and water-holding capacity (Barbour and Major 1977). The lower portions of beaches are unvegetated, while the upper beach sometimes supports a sparse herbaceous cover, especially in areas where foredunes are present.

Within the BSA, the beach habitat is largely unvegetated due to high recreational use. The beach habitat is found in the far western portion of the BSA.

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## **Disturbed Habitat**

Disturbed habitat is any land that has been permanently altered by previous human activity, including grading, repeated clearing, intensive agriculture, vehicular damage, or dirt roads. Disturbed land is typically characterized by more than 50 percent bare ground and an absence of remnant native vegetation. Furthermore, the previous disturbance was severe enough to eliminate future potential biological value of the land without active restoration.

Within the BSA, the disturbed habitat consists of dirt roads, berms, and areas of bare ground, which can be found throughout the BSA.

## **Developed**

Within the BSA, developed areas consist of buildings, paved roads, and parking lots, which are located in the western and central portions of the BSA. These areas tend not to support native vegetation; however, areas of native landscaping are located near the Visitor Center.

### **3.2 JURISDICTIONAL WATERS AND WETLANDS**

This section summarizes the information in the Jurisdictional Delineation Report (JDR) for the project (AECOM 2012). A total of 619.97 acres of potential jurisdictional waters and wetlands occurs within the BSA. Of these 619.97 acres, 618.03 acres is considered potential waters of the U.S. and state and an additional 1.94 acres is considered potential waters of the state only.

Total jurisdictional waters of the U.S. and state are listed for each wetland habitat and other waters of the U.S. (in the form of wetlands, tidal waters, or nonwetland waters/ordinary high water mark) in Table 3-2. In addition to using the latest San Diego Regional Holland Code Classification System, riparian and wetland habitats have been classified according to *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979). This classification system incorporates a hierarchical structure of systems, subsystems, and classes to identify wetland and habitat types. Hydrophytic vegetation was dominant within the wetland areas. The hydrophytic vegetation occurring within the survey area is vegetation typically associated with waters, wetlands, and riparian habitat occurring within this vicinity of California. A summary of the jurisdictional waters of the U.S. and state, with the corresponding regulatory authority, occurring within the survey area, is provided in Table 3-3.

**Table 3-2**  
**Potential Waters of the U.S. and State Occurring within the BSA<sup>a</sup>**

| Type of Jurisdictional Waters of the U.S. <sup>b</sup> and State | Type of Habitat (Holland et al. 1986 Oberbauer 1996, 2005, and Oberbauer et al. 2008) <sup>c</sup> | Type of Habitat (Cowardin et al. 1979)   | Area of Aquatic Resource (acres) <sup>d</sup> |
|--|--|--|---|
| <b>Jurisdictional Waters of the U.S.</b>                         |  |  |   |
| Wetland  | Southern Coastal Brackish Marsh (52200)  | Estuarine; Intertidal; Emergent, Persistent, Regularly Flooded, Mesosaline         | 131.37  |
| Wetland  | Southern Coastal Salt Marsh (52120)  | Estuarine; Intertidal; Emergent, Persistent, Regularly Flooded, Mixohaline         | 262.11 <sup>e</sup>                           |
| Wetland  | Disturbed Wetland (11200)  | Palustrine; Scrub/Shrub Broad-leaved, Deciduous, Seasonally Flooded, Fresh         | 1.15  |
| Wetland  | Sandbar Willow Scrub (63000)   | Palustrine; Scrub/Shrub Broad-leaved, Deciduous, Seasonally Flooded, Fresh         | 8.94  |
| Wetland  | Southern Willow Scrub (63320)  | Palustrine; Scrub/Shrub Broad-leaved, Deciduous, Seasonally Flooded, Fresh         | 60.99   |
| Other Waters   | Drainage Features/ Nonvegetated Channel (64200)  | Riverine; Unconsolidated Bottom, Sand, Intermittently Flooded, Fresh               | 0.6 (3,640 linear feet)                       |
| Tidal Waters   | Open Water/Subtidal Estuary (64131)  | Estuarine; Subtidal; Unconsolidated Bottom, Mud, Mixohaline                        | 40.2  |
| Other Waters   | Open Water/Saltpan (64300)   | Palustrine; Unconsolidated Bottom; Mud, Temporarily Flooded Saturated, Hyperhaline | 37.0  |
| Tidal Waters   | Open Water/Tidal Mudflat (64200)   | Estuarine; Subtidal; Unconsolidated Bottom, Mud, Regularly Flooded, Mixohaline     | 75.8  |
| <i>Subtotal Jurisdictional Waters of the U.S.</i>                |  |  | <i>618.2</i>                                  |
| <b>Jurisdictional Waters of the State</b>                        |  |  |   |
| Rip-Rapped Banks (Tidal Inlet Banks)                             | Disturbed Wetland (11200)  | Riverine; Tidal; Artificial Substrate Irregularly Exposed, Mixohaline              | 1.9   |
| <i>Subtotal Jurisdictional Waters of the State</i>               |  |  | <i>1.9</i>                                    |
| <b>Grand Total Jurisdictional Waters</b>                         |  |  | <b>620.1</b>                                  |

<sup>a</sup> Based on the total area of potential waters of the U.S. (including wetlands) delineated within the Reserve. Potential jurisdictional waters occurring within the Biological Study Area are relevant to California Coastal Commission, California Department of Fish and Wildlife, Regional Water Quality Control Board, and U.S. Army Corps of Engineers (Corps) regulatory administration (i.e., will require permitting and authorization of a proposed regulated activity to occur within jurisdictional aquatic features).

<sup>b</sup> Final acreages for jurisdictional waters of the U.S. will be based on the Jurisdictional Determination (JD) process per the March 30, 2007, U.S. Army Corps of Engineers Jurisdictional Determination Form Guidebook (Corps 2007); the June 5, 2007, Approved JD Form; the June 5, 2007, Joint Guidance Memorandum; and Regulatory Guidance Letter (RGL) 08-02 and December 2, 2008, Guidance Memorandum. At the time of writing the formal Jurisdictional Delineation Report, no formal JD process (of a significant nexus [SNX] to a traditional navigable waterway [TNW]) for these delineated waters has been undertaken by Corps. A JD will need to be performed for this jurisdictional delineation to confirm that Corps will assert jurisdiction over potential jurisdictional waters delineated in this report. For this jurisdictional delineation, per RGL 08-02 (4)(a), the applicant (e.g., San Elijo Lagoon Conservancy) has elected to use a Preliminary JD in the interest of expeditiously obtaining Section 404 permit authorization (see below).

<sup>c</sup> The *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986) does not provide classifications for abiotic features. These habitat codes are based on Holland's descriptions suggested by Oberbauer et al. (2008). Disturbed habitats are included as jurisdictional aquatic features.

- <sup>d</sup> Jurisdictional waters acreage of the survey area was determined by utilizing ArcGIS. All acreages are rounded to the nearest hundredth (which may account for minor rounding error).
- <sup>e</sup> The 262.1 acres of southern coastal saltmarsh is composed of three components or saltmarsh zones: low coastal saltmarsh (4.7 acres), middle coastal saltmarsh (137.4 acres), and high coastal saltmarsh (120.0 acres).

**Table 3-3**  
**Summary of Jurisdictional Waters of the U.S. and State Occurring within the Reserve**

| Type of Jurisdictional Waters of the U.S. and State     | Regulatory Authority        | Area (acres) |
|---|-----------------------------|--------------|
| <b>Jurisdictional Waters of the U.S.<sup>a</sup></b>    |                             |              |
| Other Waters  | CCC, CDFW, RWQCB, and Corps | 37.6         |
| Tidal Waters  | CCC, CDFW, RWQCB, and Corps | 116.0        |
| Wetland   | CCC, CDFW, RWQCB, and Corps | 464.6        |
| <i>Subtotal Jurisdictional Waters of the U.S.</i>       |                             | <i>618.2</i> |
| <b>Jurisdictional Waters of the State</b>               |                             |              |
| Tidal Inlet Bank  | CCC, CDFW, and RWQCB        | 1.9          |
| <i>Subtotal Jurisdictional Waters of the State Only</i> |                             | <i>1.9</i>   |
| <b>Grand Total Jurisdictional Waters</b>                |                             | <b>620.1</b> |

CCC = California Coastal Commission; CDFW = California Department of Fish and Wildlife; RWQCB = Regional Water Quality Control Board; Corps = U.S. Army Corps of Engineers

<sup>a</sup> Jurisdictional waters of the U.S. include jurisdictional waters of the state and are under the purview of Corps and CDFW.

### 3.3 FLORA

This section discusses plant species detected within the BSA or with potential to occur within the BSA. Approximately 411 plant species occur within San Elijo Lagoon; of these species, 113 are nonnative. This list is compiled from three different sources: AECOM 2010 rare plant surveys, BioBlitz (2009), and Tom Chester (2003). A comprehensive list of plant species occurring within San Elijo Lagoon is included in Appendix A. Appendix C also includes background information from BioBlitz.

Sensitive plant species are species that are either legally protected under the federal ESA or CESA or other regulations. Plant species that are not legally protected under the CESA and/or ESA may still be protected by other regulations, or considered by the scientific community to be sufficiently rare to qualify for special-status protections. CNPS List 1A, 1B, and 2 species are fully considered, as they meet the definitions of Section 1901, Chapter 10 (Native Plant Protection Act) or Sections 2062 and 2067 (CESA) during the preparation of environmental documents relating to CEQA. Many CNPS List 3 and 4 species do not meet the definitions of Section 1901, Chapter 10 (Native Plant Protection Act) or Sections 2062 and 2067 (CESA) but are strongly recommended for consideration under CEQA (CNPS 2001).



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Based on searches of the CNDDDB, Jepson Online Interchange (2010), and input from SELC staff, 32 sensitive plant species were determined to have some potential to occur in the BSA based on habitat conditions and regional location (Table 3-4). It should be noted that 22 of the 32 sensitive plant species were detected within the BSA during the 2010 botanical surveys. These 22 sensitive plant species are shown in Table 3-4 and their locations are mapped in Figure 3-2.

The 22 sensitive plant species found to be present in the BSA are discussed in detail below, organized by federally listed, state-listed, and nonlisted plant species.

### **3.3.1 Federally Listed Plant Species**

Of the 32 sensitive plant species determined to have potential to occur in the BSA, three are listed as federally endangered; Del Mar manzanita (*Arctostaphylos glandulosa* ssp. *crassifolia*), coastal dunes milkvetch (*Astragalus tener* var. *titi*), and salt marsh bird's-beak (*Cordylanthus maritimus* ssp. *maritimus*).

Of these three, only Del Mar manzanita was found present within the BSA.

#### **Del Mar Manzanita**

Within San Diego County, this evergreen shrub is only found from Torrey Pines State Reserve north to Encinitas. Del Mar manzanita occurs in chaparral, often with chamise and wart-stemmed ceanothus (*Ceanothus verrucosus*) on eroding sandstone. Del Mar manzanita is found in the Diegan coastal sage scrub/chaparral community in the southern central portion of the BSA, just west of I-5.

### **3.3.2 State-Listed Plant Species**

Of the 32 sensitive plant species determined to have potential to occur in the BSA, three are listed as state endangered: coastal dunes milkvetch, Orcutt's goldenbush (*Hazardia orcuttii*), and salt marsh bird's-beak. Of these three, only Orcutt's goldenbush was found within the BSA.

#### **Orcutt's Goldenbush**

Orcutt's goldenbush is found from San Diego County south to Baja California, Mexico. Open chaparral with chamise and Diegan coastal sage scrub is the preferred habitat of this species (Reiser 2001). Approximately 25 Orcutt's goldenbush individuals were detected in nonnative grassland Diegan coastal sage scrub in the eastern portion of the BSA.

**Table 3-4**  
**Sensitive Plant Species Detected or with Potential to Occur within the BSA**

| <b>Common Name<br/>Scientific Name</b>   | <b>Sensitivity<br/>Status<sup>1</sup></b>                       | <b>General Habitat<br/>Description<br/>(CNPS 2010)</b>  | <b>Plant Habit<br/>Flowering<br/>Period</b>         | <b>Detected<br/>(D) or<br/>Not<br/>Detected<br/>(ND)<sup>2</sup></b> | <b>Probability of Occurrence</b>   |
|--|---|---|---|--|--|
| spineshrub <sup>2</sup><br><i>Adolphia<br/>californica</i>   | CNPS: List<br>2.1   | Chaparral, coastal<br>scrub, and valley<br>and foothill<br>grassland/clay soils.<br>Elevation 147–<br>2,430 feet.               | Deciduous<br>shrub,<br>blooms<br>December–<br>May.  | D  | Present. Approximately 200<br>individuals are present in an area<br>of nonnative grassland in the far<br>eastern portion of the BSA.   |
| aphanisma<br><i>Aphanisma<br/>blitoides</i>  | CNPS: List<br>1B.2<br>MSCP:<br>Covered                          | Coastal bluff scrub,<br>coastal dunes, and<br>coastal scrub/sandy.<br>Elevation 3–920<br>feet.                                  | Annual herb,<br>blooms<br>March –<br>June.          | ND   | High potential of occurrence<br>within the BSA due to presence<br>of potential habitat; however,<br>this species was not detected<br>during project surveys. The<br>closest known occurrence of this<br>species is 2 miles south of the<br>BSA.      |
| Del Mar<br>manzanita <sup>3</sup><br><i>Arctostaphylos<br/>glandulosa</i> ssp.<br><i>Crassifolia</i> | ESA:<br>Endangered<br>CNPS: List<br>1B.1<br>MSCP:<br>Covered    | Chaparral/maritime,<br>sandy.<br>Elevation 0–1,200<br>feet.   | Evergreen<br>shrub,<br>blooms<br>December–<br>June. | D  | Present. This species is present<br>within the Diegan coastal sage<br>scrub/chaparral community in<br>the southern portion of the BSA.   |
| San Diego<br>sagewort <sup>2</sup><br><i>Artemisia<br/>palmeri</i>                                   | CNPS: List<br>4.2   | Chaparral, coastal<br>scrub, riparian<br>forest, riparian<br>scrub, and riparian<br>woodland.<br>Elevation 50–3,000<br>feet.    | Deciduous<br>shrub,<br>blooms<br>May–<br>September. | D  | Present. Several hundred<br>individuals are present in<br>southern willow scrub and<br>coastal salt marsh habitat types<br>in the southwestern portion of<br>the BSA.  |
| coastal dunes<br>milkvetch<br><i>Astragalus tener</i><br>var. <i>titi</i>                            | ESA:<br>Endangered<br>CESA:<br>Endangered<br>CNPS: List<br>1B.1 | Coastal bluff scrub,<br>coastal dunes,<br>coastal prairie.<br>Elevation 0–150<br>feet.  | Annual herb,<br>blooms<br>March–May.                | ND   | Moderate potential of<br>occurrence within the BSA due<br>to presence of potential habitat;<br>however, this species was not<br>detected during project surveys.<br>The closest known occurrence of<br>this species is 25 miles south of<br>the BSA. |
| Coulter's<br>saltbush<br><i>Atriplex coulteri</i>  | CNPS: List<br>1B.2  | Coastal bluff scrub,<br>coastal dunes, and<br>coastal scrub, valley<br>and foothill<br>grassland.<br>Elevation 3–1,300<br>feet. | Perennial<br>herb, blooms<br>March–<br>October.     | ND   | Moderate potential of<br>occurrence within the BSA due<br>to presence of potential habitat;<br>however, this species was not<br>detected during project surveys.<br>The closest known occurrence of<br>this species is 6.5 miles east of<br>the BSA. |

| <b>Common Name<br/>Scientific Name</b>  | <b>Sensitivity<br/>Status<sup>1</sup></b> | <b>General Habitat<br/>Description<br/>(CNPS 2010)</b>   | <b>Plant Habit<br/>Flowering<br/>Period</b>        | <b>Detected<br/>(D) or<br/>Not<br/>Detected<br/>(ND)<sup>2</sup></b> | <b>Probability of Occurrence</b>   |
|---|---|--|--|--|--|
| south coast<br>saltscale<br><i>Atriplex pacifica</i>                              | CNPS: List<br>1B.2                        | Coastal bluff scrub,<br>coastal dunes,<br>coastal scrub, and<br>playas.<br>Elevation 0–450<br>feet.  | Annual herb,<br>blooms<br>March–<br>October.       | ND   | Moderate potential of<br>occurrence within the BSA due<br>to presence of potential habitat;<br>however, this species was not<br>detected during project surveys.<br>The closest known occurrence of<br>this species is 15 miles north of<br>the BSA. |
| Davidson's<br>saltscale<br><i>Atriplex<br/>serenana</i> var.<br><i>davidsonii</i> | CNPS: List<br>1B.2                        | Coastal bluff scrub<br>and coastal scrub.<br>Elevation 30–600<br>feet.   | Annual herb,<br>blooms<br>April–<br>October.       | ND   | Moderate potential of<br>occurrence within the BSA due<br>to presence of potential habitat;<br>however, this species was not<br>detected during project surveys.<br>The closest known occurrence of<br>this species is 18 miles south of<br>the BSA. |
| Lewis's<br>evening-<br>primrose <sup>3</sup><br><i>Camissonia<br/>lewisii</i>     | CNPS: List<br>3                           | Coastal bluff scrub,<br>cismontane<br>woodland, coastal<br>dunes, coastal<br>scrub, and valley<br>and foothill<br>grassland.<br>Elevation 0–900<br>feet. | Annual herb,<br>blooms<br>March–May.               | D  | Present. This species is present<br>within the Diegan coastal sage<br>scrub/chaparral community.   |
| wart-stemmed<br>ceanothus <sup>2</sup><br><i>Ceanothus<br/>verrucosus</i>         | CNPS: List<br>2.2<br>MSCP:<br>Covered     | Chaparral.<br>Elevation 3–1,200<br>feet.   | Evergreen<br>shrub,<br>blooms<br>December–<br>May. | D  | Present. Several hundred<br>individuals are present in the<br>Diegan coastal sage<br>scrub/chaparral community in<br>the southwestern portion of the<br>BSA.   |
| southern tarplant<br><i>Centromadia<br/>parryi</i> ssp.<br><i>australis</i>       | CNPS: List<br>1B.1                        | Marshes and<br>swamps, valley and<br>foothill grassland,<br>and vernal pools.<br>Elevation 0–1,300<br>feet.  | Annual herb,<br>blooms<br>May–<br>November.        | ND   | High potential of occurrence<br>within the BSA due to presence<br>of potential habitat; however,<br>this species was not detected<br>during project surveys. The<br>closest known occurrence of this<br>species is 2.1 miles south of the<br>BSA.    |
| smooth tarplant<br><i>Centromadia<br/>pungens</i> ssp.<br><i>laevis</i>           | CNPS: List<br>1B.1                        | Chenopod scrub,<br>meadows and seeps,<br>playas, riparian<br>woodland, and<br>valley and foothill<br>grassland.<br>Elevation 0–2,500<br>feet.            | Annual herb,<br>blooms<br>April–<br>September.     | ND   | Moderate potential of<br>occurrence within the BSA due<br>to presence of potential habitat;<br>however, this species was not<br>detected during project surveys.<br>The closest known occurrence of<br>this species is 18 miles north of<br>the BSA. |

| Common Name<br>Scientific Name   | Sensitivity<br>Status <sup>1</sup>  | General Habitat<br>Description<br>(CNPS 2010)   | Plant Habit<br>Flowering<br>Period                           | Detected<br>(D) or<br>Not<br>Detected<br>(ND) <sup>2</sup> | Probability of Occurrence  |
|--|---|---|--|--|--|
| Orcutt's<br>pincushion <sup>2</sup><br><i>Chaenactis<br/>glabriuscula</i> var.<br><i>orcuttiana</i>  | CNPS: List<br>1B.1  | Coastal bluff scrub<br>and coastal dunes.<br>Elevation 9–300<br>feet.   | Annual herb,<br>blooms<br>January–<br>August.                | D  | Present. Approximately 1,000<br>individuals were detected within<br>the coastal strand community in<br>the western portion of the BSA.   |
| summer holly <sup>3</sup><br><i>Comarostaphylis<br/>diversifolia</i> ssp.<br><i>diversifolia</i>   | CNPS: List<br>1B.2  | Chaparral and<br>cismontane<br>woodland.<br>Elevation 90–1,700<br>feet.   | Evergreen<br>shrub,<br>blooms<br>April–June.                 | D  | Present. This species is present<br>within the Diegan coastal sage<br>scrub/chaparral community.   |
| salt marsh<br>bird's-beak<br><i>Cordylanthus<br/>maritimus</i> ssp.<br><i>maritimus</i>  | ESA:<br>Endangered<br>CESA:<br>Endangered<br>CNPS: List<br>1B.2<br>MSCP:<br>Covered | Coastal dunes and<br>marshes and<br>swamps.<br>Elevation 0–100<br>feet.   | Annual,<br>hemiparasitic<br>herb, blooms<br>May–<br>October. | ND   | Moderate potential of<br>occurrence within the BSA due<br>to presence of potential habitat;<br>however, this species was not<br>detected during project surveys.<br>The closest known occurrence of<br>this species is 26 miles south of<br>the BSA.   |
| sea dahlia <sup>2</sup><br><i>Coreopsis<br/>maritima</i>   | CNPS: List<br>2.2   | Coastal bluff and<br>coastal scrub.<br>Elevation 20–500<br>feet.  | Perennial<br>herb, blooms<br>March–May.                      | D  | Present. Approximately 900<br>individuals are present in the<br>Diegan coastal sage scrub<br>community in the southwestern<br>portion of the BSA.  |
| Del Mar Mesa<br>sand aster<br><i>Corethrogyne<br/>filaginifolia</i> var.<br><i>filaginifolia</i><br>( <i>Corethrogyne<br/>filaginifolia</i> var.<br><i>linifolia</i> ) | Formerly<br>CNPS List<br>1B.1   | Coastal bluff and<br>coastal scrub.<br>Elevation 20–500<br>feet.  | Perennial<br>herb, blooms<br>May–<br>September               | D  | Present. This species is present<br>within the Diegan coastal sage<br>scrub/chaparral community. Due<br>to recent taxonomic changes, the<br>variety <i>C. filaginifolia</i> var.<br><i>linifolia</i> has been lumped with<br><i>C. filaginifolia</i> var. <i>filaginifolia</i> .<br>Thus, <i>C. filaginifolia</i> var.<br><i>linifolia</i> is no longer considered<br>a valid taxon. <i>C. filaginifolia</i><br>var. <i>filaginifolia</i> is not<br>considered sensitive by the<br>CNPS. |
| western<br>dichondra <sup>3</sup><br><i>Dichondra<br/>occidentalis</i>   | CNPS: List<br>4.2   | Chaparral,<br>cismontane<br>woodland, coastal<br>scrub, and valley<br>and foothill<br>grassland.<br>Elevation 150–<br>1,500 feet. | Rhizomatous<br>herb, blooms<br>March–July.                   | D  | Present. This species is present<br>within the Diegan coastal sage<br>scrub/chaparral community in<br>the southeastern portion of the<br>BSA.  |
| coast<br>wallflower <sup>2</sup><br><i>Erysimum<br/>ammophilum</i>   | CNPS: List<br>1B.2<br>MSCP:<br>Covered  | Chaparral, coastal<br>dunes, and coastal<br>scrub.<br>Elevation 0–250<br>feet.  | Perennial<br>herb, blooms<br>February–<br>June.              | D  | Present. Approximately 250<br>individuals are present in the<br>Diegan coastal sage scrub<br>community in the southwestern<br>portion of the BSA.  |



| <b>Common Name<br/>Scientific Name</b>  | <b>Sensitivity<br/>Status<sup>1</sup></b> | <b>General Habitat<br/>Description<br/>(CNPS 2010)</b>  | <b>Plant Habit<br/>Flowering<br/>Period</b>          | <b>Detected<br/>(D) or<br/>Not<br/>Detected<br/>(ND)<sup>2</sup></b> | <b>Probability of Occurrence</b>  |
|---|---|---|--|--|---|
| coast barrel<br>cactus <sup>2</sup><br><i>Ferocactus<br/>viridescens</i> var.<br><i>viridescens</i> | CNPS: List<br>2.1<br>MSCP:<br>Covered     | Chaparral, coastal<br>scrub, valley and<br>foothill grassland,<br>and vernal pools.<br>Elevation 9–1,400<br>feet. | Stem<br>succulent,<br>blooms<br>May–June.            | D  | Present. Approximately 30<br>individuals are present in the<br>Diegan coastal sage scrub<br>community in the eastern portion<br>of the BSA.                 |
| Palmer's<br>grapplinghook <sup>2</sup><br><i>Harpagonella<br/>palmeri</i>                           | CNPS: List<br>4.2                         | Chaparral, coastal<br>scrub, and valley<br>and foothill<br>grassland.<br>Elevation 60–3,000<br>feet.              | Annual herb,<br>blooms<br>March–May.                 | D  | Present. Several hundred<br>individuals are present within<br>the nonnative grassland<br>community in the eastern portion<br>of the BSA.                    |
| Orcutt's<br>goldenbush <sup>2</sup><br><i>Hazardia<br/>orcuttii</i>                                 | CESA:<br>Threatened<br>CNPS: List<br>1B.1 | Chaparral and<br>coastal scrub.<br>Elevation 250–300<br>feet.   | Evergreen<br>shrub,<br>blooms<br>August–<br>October. | D  | Present. This species is present<br>within the nonnative grassland<br>community in the eastern portion<br>of the BSA.                                       |
| San Diego<br>marsh-elder <sup>2,3</sup><br><i>Iva hayesiana</i>                                     | CNPS: List<br>2.2<br>MHCP                 | Marshes, swamps,<br>and playas.<br>Elevation 30–1,600<br>feet.  | Perennial<br>herb, blooms<br>April–<br>October.      | D  | Present. Approximately 150<br>individuals are present within<br>the brackish marsh and salt<br>marsh communities in the<br>northeastern portion of the BSA. |
| southwestern<br>spiny rush <sup>2</sup><br><i>Juncus acutus</i><br>ssp. <i>leopoldii</i>            | CNPS: List<br>4.2                         | Coastal dunes,<br>meadows and seeps,<br>and marshes and<br>swamps.<br>Elevation 9–3,000<br>feet.                  | Perennial<br>herb,<br>blooms,<br>May–June.           | D  | Present. Several hundred<br>individuals are scattered<br>throughout the brackish marsh<br>and salt marsh communities.                                       |
| Coulter's<br>goldfields <sup>2,3</sup><br><i>Lasthenia<br/>glabrata</i> ssp.<br><i>coulteri</i>     | CNPS List<br>1B.1                         | Marshes and<br>swamps, playas,<br>and vernal pools<br>Elevation 3–4,000<br>feet.                                  | Annual herb,<br>blooms<br>February–<br>June.         | D  | Present. Approximately 10,000<br>individuals are present within<br>coastal salt marsh/saltpan<br>communities in the eastern<br>portion of the BSA.          |
| Nuttall's lotus <sup>2</sup><br><i>Lotus<br/>nuttallianus</i>                                       | CNPS: List<br>1B.1<br>MSCP:<br>Covered    | Coastal dunes and<br>coastal scrub<br>Elevation 0–40 feet.  | Annual herb,<br>blooms<br>March–June.                | D  | Present. Several hundred<br>individuals are present within<br>the coastal strand community in<br>the western portion of the BSA.                            |
| California desert<br>thorn <sup>2</sup><br><i>Lycium<br/>californicum</i>                           | CNPS: List<br>4.2                         | Coastal bluff scrub<br>and coastal scrub.<br>Elevation 20–500<br>feet.  | Shrub,<br>blooms<br>March–<br>August.                | D  | Present. Approximately 100<br>individuals are present within<br>the Diegan coastal sage scrub<br>community in the eastern portion<br>of the BSA.            |
| Coast woolly-<br>heads <sup>2</sup><br><i>Nemacaulis<br/>denudata</i> var.<br><i>denudata</i>       | CNPS: List<br>1B.1                        | Coastal Dunes.<br>Elevation 0–300<br>feet.  | Annual herb,<br>blooms<br>April–<br>September.       | D  | Present. Several hundred<br>individuals are present within<br>the coastal strand community in<br>the western portion of the BSA.                            |

| <b>Common Name<br/>Scientific Name</b>   | <b>Sensitivity<br/>Status<sup>1</sup></b> | <b>General Habitat<br/>Description<br/>(CNPS 2010)</b>   | <b>Plant Habit<br/>Flowering<br/>Period</b>          | <b>Detected<br/>(D) or<br/>Not<br/>Detected<br/>(ND)<sup>2</sup></b> | <b>Probability of Occurrence</b>   |
|--|---|--|--|--|--|
| Torrey pine <sup>2</sup><br><i>Pinus torreyana</i><br>var. <i>torreyana</i>    | CNPS: List<br>1B.2<br>MSCP:<br>Covered    | Closed-cone<br>coniferous forest<br>and<br>chaparral/sandstone.<br>Elevation 300–700<br>feet.        | Evergreen<br>coniferous<br>tree                      | D  | Present. Approximately 20<br>individuals are scattered<br>throughout the BSA.  |
| Brand's star<br>phacelia<br><i>Phacelia</i><br><i>stellaris</i>                | CNPS: List<br>1B.1                        | Coastal dunes and<br>coastal scrub.<br>Elevation 3–1,200<br>meters.                                  | Annual herb,<br>blooms<br>March–June.                | ND   | Moderate potential of<br>occurrence within the BSA due<br>to presence of potential habitat;<br>however, this species was not<br>detected during project surveys.<br>The closest known occurrence of<br>this species is 17 miles north of<br>the BSA. |
| Nuttall's scrub<br>oak <sup>2</sup><br><i>Quercus dumosa</i>                   | CNPS: List<br>1B.1                        | Closed-cone<br>coniferous forest,<br>chaparral, and<br>coastal scrub.<br>Elevation 50–1,200<br>feet. | Evergreen<br>shrub,<br>blooms<br>February–<br>April. | D  | Present. Several individuals are<br>present within the Diegan<br>coastal sage scrub/chaparral<br>community in the southeastern<br>portion of the BSA.  |
| mesa spike-<br>moss <sup>2,3</sup><br><i>Selaginella</i><br><i>cinerascens</i> | CNPS: List<br>4.1                         | Chaparral and<br>coastal scrub<br>Elevation 60–2,000<br>feet.  | Rhizomatous<br>herb.                                 | D  | Present. Several colonies are<br>present within the nonnative<br>grassland and Diegan coastal<br>sage scrub communities in the<br>eastern portion of the BSA.  |
| estuary seablite<br><i>Suaeda esteroa</i>                                      | CNPS: List<br>1B.2                        | Marshes and<br>swamps.<br>Elevation 0–20 feet.   | Perennial<br>herb, blooms<br>May–<br>October.        | ND   | High potential of occurrence<br>within the BSA due to presence<br>of potential habitat; however,<br>this species was not detected<br>during project surveys. The<br>closest known occurrence of this<br>species is 2.5 miles south of the<br>BSA.    |

<sup>1</sup> **Sensitivity Status Key**

ESA: Federal Endangered Species Act (ESA) Endangered

CESA: California Endangered Species Act (CESA) Endangered

CNPS: California Native Plant Society Lists:

1B: Considered rare, threatened, or endangered in California and elsewhere

2: Plants rare, threatened, or endangered in California, but more common elsewhere

3: Plants for which we need more information – review list

4: Plants of limited distribution a watch list

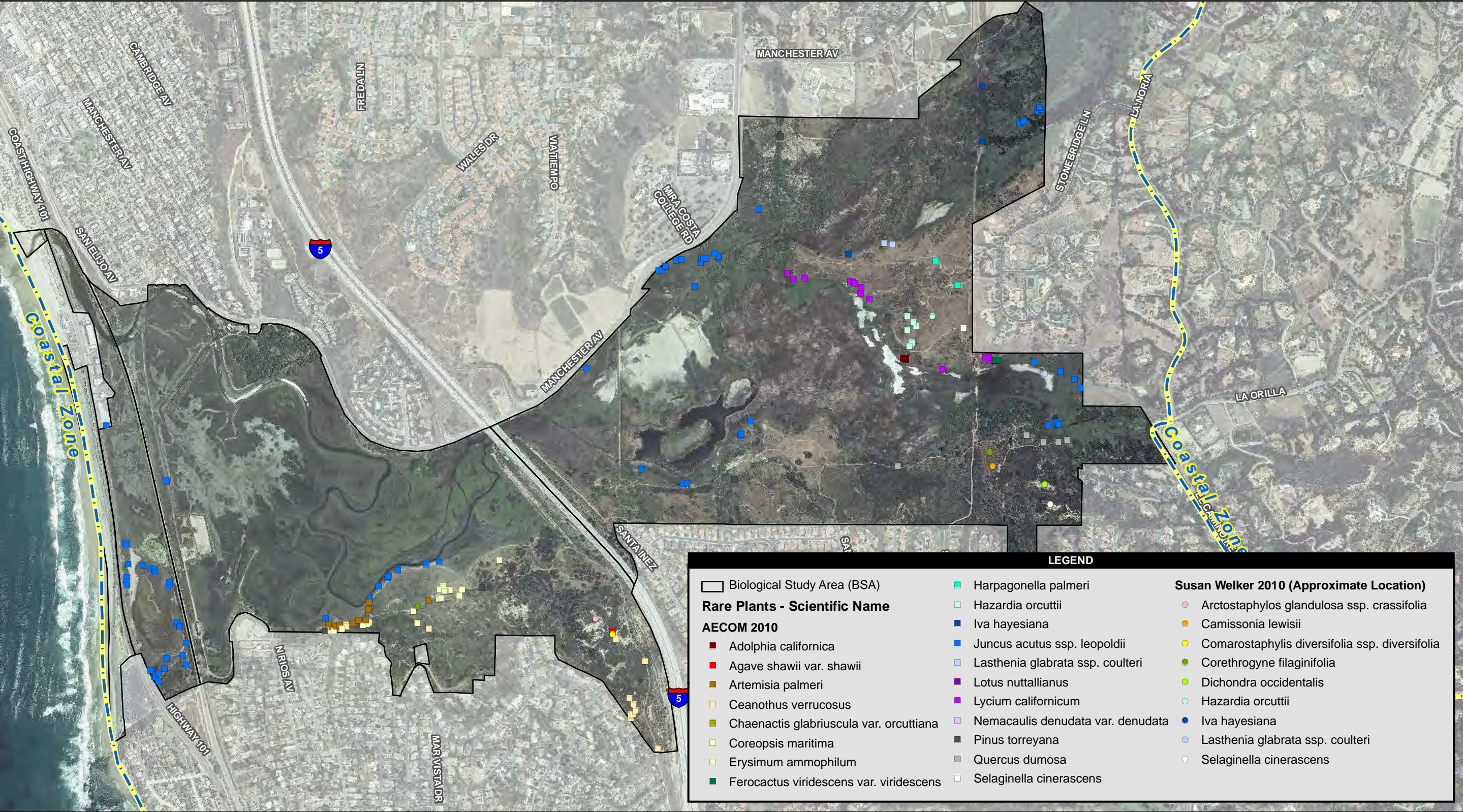
Decimal notations: .1 – Seriously endangered in California, .2 – Fairly endangered in California, .3 – Not very endangered in California

Multiple Species Conservation Program (MSCP)

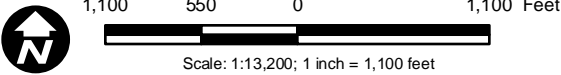
<sup>2</sup> AECOM 2010 Rare Plant Survey data

<sup>3</sup> Susan Welker 2010 Rare Plant Survey data





Source: SANDAG 2012; SanGIS; AECOM 2014



**Figure 3-2**  
**Rare Plants within the Survey Area**



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### 3.3.3 Nonlisted Special-Status Plant Species

Twenty-eight special-status plant species determined to have potential to occur in the BSA are considered sensitive by the CNPS (List 1, 2, 3, or 4). Of these 28 nonlisted sensitive plant species, 20 were found within the BSA, as shown in Figure 3-2, and are discussed below.

#### Spineshrub

Spineshrub (*Adolphia californica*) is often intermixed with Diegan coastal sage scrub habitat but sometimes occurs on the periphery of chaparral habitat (Reiser 2001). Associates often include California buckwheat (*Eriogonum fasciculatum*) and coastal sagebrush. Spinebrush is found on a south-facing hillside, in an area of moderately dense Diegan coastal sage scrub in the eastern portion of the BSA.

#### San Diego Sagewort

San Diego sagewort (*Artemisia palmeri*) is found from coastal southern California south to Baja California, Mexico. San Diego sagewort is usually found near the coast growing in the shaded understory of willow, western sycamore, and western cottonwood. San Diego sagewort is found in the southwestern portion of the BSA among willow and western cottonwood, but also in more open areas on the periphery of the southern coastal salt marsh habitat. Due to dense shrub cover, polygons could not be delineated around entire populations of San Diego sagewort; therefore, points indicating this species represent several individuals in Figure 3-2.

#### Lewis's Evening-Primrose

Lewis's evening-primrose (*Camissonia lewisii*) is found from coastal southern California south to Baja California, Mexico. This small annual herb is frequently found in very sandy substrates near the coast, typically on coastal bluffs (Reiser 2001). This species is found within an open, sandy area of Diegan coastal sage scrub in the southeastern portion of the BSA.

#### Wart-Stemmed Ceanothus

Wart-stemmed ceanothus (*Ceanothus verrucosus*) is found from coastal southern California south to Baja California, Mexico. This species is usually found in coastal chaparral with chamise and mission manzanita and can become dominant where it occurs, especially on north-facing slopes (Reiser 2001). Wart-stemmed ceanothus is found in open to dense patches, scattered throughout the Diegan coastal sage scrub habitat in the southwestern portion of the BSA. Due to

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steep terrain, polygons around entire populations could not be delineated; therefore, points in Figure 3-2 may represent several individuals.

#### Orcutt's Pincushion

Orcutt's pincushion (*Chaenactis glabriuscula* var. *orcuttiana*) is endemic to southern California, limited to sandy areas in coastal dunes and bluffs. This species is restricted to the coastal strand community in the far western portion of the BSA (east of West Highway 101 only). Recent road repair activities have removed many plants in this population.

#### Summer Holly

Summer holly (*Comarostaphylis diversifolia* ssp. *diversifolia*) is found from southern California south to Baja California, Mexico. Its preferred habitat is in chaparral on north-facing slopes, often with toyon (*Heteromeles arbutifolia*) and chamise. The majority of occurrences of summer holly occur west of I-15 (Reiser 2001). Summer holly is found in the Diegan coastal sage scrub/chaparral habitat in the far southeastern corner of the BSA.

#### Sea Dahlia

Sea dahlia (*Coreopsis maritima*) is found from southern California south to Baja California, Mexico. This species is found near the ocean on highly eroding sandstone cliffs. Herbivory pressure is believed to play a role in the utilization of the cliff habitat (Reiser 2001). Sea dahlia is restricted to the eroding cliff sides within the Diegan coastal sage scrub habitat in the southwestern portion of the BSA. Due to steep terrain, polygons could not be delineated around entire populations of sea dahlia; therefore, points in Figure 3-2 may represent several individuals.

#### Western Dichondra

Western dichondra (*Dichondra occidentalis*) is found along the coast from Santa Barbara County south to Baja California, Mexico. Chaparral, Diegan coastal sage scrub, grasslands, and post-burn habitat can all be utilized by western dichondra (Reiser 2001). This species is found in the southeastern portion of the BSA in Diegan coastal sage scrub/chaparral habitat.

#### Coast Wallflower

Coast wallflower (*Erysimum ammophilum*) is endemic to California and is found near the coast from Monterey to San Diego County. Old eroded dunes, now well back of the existing beachline, and sandy locales in chaparral openings are the preferred habitat of this species (Reiser 2001).

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Coast wallflower is found on the eroding hillsides within the Diegan coastal sage scrub community in the southwestern portion of the BSA. Due to steep terrain, polygons could not be delineated around entire populations; therefore, points in Figure 3-2 may represent several individuals.

#### Coast Barrel Cactus

Coast barrel cactus (*Ferocactus viridescens* var. *viridescens*) occurs from San Diego County south to Baja California, Mexico. This species typically occurs on hillsides within Diegan coastal sage scrub and can also occasionally be found on the edge of vernal pools (Reiser 2001). Coast barrel cactus is found at the transition point between Diegan coastal sage scrub and coastal salt marsh in the eastern portion of the BSA.

#### Palmer's Grapplinghook

Palmer's grapplinghook (*Harpagonella palmeri*) ranges from southern California south to Baja California, Mexico. Open grassy slopes or open Diegan coastal sage scrub on clay soils is the preferred habitat of this species (Reiser 2001). Several hundred individuals of Palmer's grapplinghook are found in an open area of nonnative grassland in the eastern portion of the BSA.

#### San Diego Marsh-Elder

San Diego marsh-elder (*Iva hayesiana*) is found from San Diego County south to Baja California, Mexico. This species occurs on sandy to cobbly embankments in creeks and streambeds with a semi-open canopy (Reiser 2001). San Diego marsh-elder is present within the southern willow scrub and coastal brackish marsh communities in the eastern portion of the BSA. Due to dense shrub cover, polygons could not be delineated around entire populations. Points in Figure 3-2 may represent several individuals.

#### Southwestern Spiny Rush

Southwestern spiny rush (*Juncus acutus* ssp. *leopoldii*) ranges from southern California south to Baja California, Mexico. Coastal salt marsh, brackish marsh, and alkaline meadows are all suitable habitat for this species (Reiser 2001). Southwestern spiny rush is scattered throughout the BSA in southern coastal salt marsh and brackish marsh habitats.

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### Coulter's Goldfields

Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*) ranges from southern California south to Baja California, Mexico. This species occurs in coastal marshes at the upper end of tidal influence (Reiser 2001). Coulter's goldfields is found in southern coastal salt marsh along the periphery of the saltpan in the northeastern portion of the BSA and in the southeastern portion of the BSA along both sides of a utility access road. Coulter's goldfields was not present at the point indicated by Susan Welker (2010); however, this area is highly suitable habitat and this species may have previously occurred at this location.

### Nuttall's Lotus

Nuttall's lotus (*Lotus nuttallianus*) is found from San Diego County south to Baja California, Mexico. This species prefers coastal dunes, especially well-protected dunes with minimal human disturbance. Nuttall's lotus is close to extinction in the United States and is a candidate for federal endangered status (Reiser 2001). Nuttall's lotus is found within the coastal strand habitat in the far western portion of the BSA, but east of Highway 101.

### California Desert Thorn

California desert thorn (*Lycium californicum*) occurs along the coast from southern California south to Baja California, Mexico. This species prefers coastal bluff scrub and Diegan coastal sage scrub. California desert thorn occurs in Diegan coastal sage scrub just upslope from southern coastal salt marsh in the eastern portion of the BSA.

### Coast Woolly-Heads

Coast woolly-heads (*Nemacaulis denudata* var. *denudata*) occurs along the coast from southern California south to Baja California, Mexico. This species prefers coastal dunes, especially well-protected dunes with minimal human disturbance. This species is almost extirpated in San Diego County due to heavy beach recreation (Reiser 2001). Coast woolly-heads is found within the coastal strand habitat in the far western portion of the BSA.

### Torrey Pine

Torrey pine (*Pinus torreyana* var. *torreyana*) is endemic to California and is found in San Diego County and Santa Rosa Island. Closed-cone coniferous forest along the coast near Del Mar intermixed with chaparral is the mainland habitat of the Torrey pine (Reiser 2001). This species is found in small numbers scattered throughout the BSA in upland habitat.

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### Nuttall's Scrub Oak

Nuttall's scrub oak (*Quercus dumosa*) occurs along the coast from southern California south to Baja California, Mexico. This species prefers coastal chaparral with a relatively open canopy (Reiser 2001). Nuttall's scrub oak is found within the Diegan coastal sage scrub/chaparral community in the southeastern portion of the BSA.

### Mesa Spike-Moss

Mesa spike-moss (*Selaginella cinerascens*) occurs from southern California south to Baja California, Mexico. This species prefers open chaparral and Diegan coastal sage scrub on undisturbed soils (Reiser 2001). Large colonies of mesa spike-moss are found within the Diegan coastal sage scrub community in the southeastern portion of the BSA.

## **3.4 FAUNA**

This section discusses wildlife species detected, or with potential to occur, within the BSA. A review of the wildlife studies outlined in Chapter 2.0 found that over 500 wildlife species (including invertebrates) have been detected at San Elijo Lagoon. This includes 213 insect species, 28 spider species, 24 aquatic invertebrates, 23 fish species, over 20 reptile and amphibian species, over 295 avian species (including 65 nesting), and 24 mammal species. A discussion of non-special-status wildlife species is provided below, followed by detailed discussions of each special-status species detected during surveys within the BSA.

### **3.4.1 Non-Special-Status Species**

#### **Invertebrates**

Insects play an important role within many native habitats. Many insects act as pollinators for specific plants, without which the plants would not be able to persist. Many common pollinators are butterflies and moths. During the 2009 BioBlitz, 213 species of insects and 28 spider species were detected. The complete list of species identified during the BioBlitz is not available at this time.

Marine invertebrate species detected during sampling from 2007 through 2009 include *Palaemon macrodactylus*, *Neotrypaea* sp., *Hemigrapsus oregonensis*, *Uca* sp., *Majidae* sp., *Pachygrapsus crassipes*, *Cancer* sp., *Polydora nuchalis*, *Polydora* sp., *Capitella capitata*, *Spiophanes missionensis*, *Lacuna* sp., *Cylichna culcitella*, *Tagelus californianus*, *Certhidea californica*,

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*Tellina* sp., *Protothaca staminea*, *Chione californiensis*, *Ostrea* sp., *Lottia* sp., *Mytilus californianus*, *Tellina carpenteri*, *Aplysia californica*, *Aplysia vaccaria*, and *Navanax intermis*.

## **Fish**

The open water habitat in the lagoon supports many marine fish and several freshwater or brackish water fish species. Marine fish detected within the BSA include California killifish (*Fundulus parvipinnis*), arrow goby (*Clevelandia ios*), cheekspot goby (*Ilypnus gilberti*), shadow goby (*Quietula ycauda*), yellowfin goby (*Acanthogobius flavimanus*), longjaw mudsucker (*Gillichthys mirabilis*), California halibut (*Paralichthys californicus*), diamond turbot (*Hypsopsetta guttulata*), topsmelt (*Atherinops affinis*), jacksmelt (*Atherinops californiensis*), northern anchovy (*Engraulis mordax*), deepbody anchovy (*Anchoa compressa*), striped mullet (*Mugil cephalus*), California butterfly ray (*Gymnura marmorata*), bat ray (*Myliobatis californica*), spotted sand bass (*Paralabrax maculatofasciatus*), opaleye (*Girella nigricans*), staghorn sculpin (*Leptocottus armatus*), gray smoothhound (*Mustelus californicus*), bay pipefish (*Sygnathus leptorhynchus*), and barred pipefish (*Sygnathus auliscus*). Freshwater or brackish water species detected include carp (*Cyprinus carpio*) and black bullhead (*Ictalurus melas*).

## **Reptiles and Amphibians**

The riparian and upland vegetation communities present on-site provide habitat for several reptile and amphibian species. Non-special-status amphibian species detected within the BSA include Pacific treefrog (*Hyla regilla*), bullfrog (*Rana catesbeiana*), pond slider turtle (*Trachemys scripta*), and garden slender salamander (*Batrachoseps major*). Non-special-status reptile species observed within the BSA include California legless lizard (*Anniella pulchra*), western fence lizard (*Sceloporus occidentalis*), side-blotched lizard (*Uta stansburiana*), southern alligator lizard (*Elgaria multicarinata*), tiger whiptail (*Aspidoscelis tigris*), and western rattlesnake (*Crotalus oreganus*).

## **Birds**

The high diversity of bird species at the lagoon is a result of upland, riparian, open water, and coastal interface within the BSA. Riparian areas typically have a higher diversity of bird species than other habitats in coastal southern California due to the increased structural diversity of the habitat in comparison to surrounding more arid scrub habitat. The riparian habitat at San Elijo Lagoon is unique in that it borders with the coastal zone and has large areas of open water. This provides habitat for coastal bird species and bird species that are typically found along freshwater riparian areas. Many upland bird species also use the adjacent riparian habitat for resources. Coastal sage scrub habitat also supports a rich diversity of birds. In addition, the large



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block of riparian, open water, and upland habitats provide a stopover for many migratory bird species.

Avian species commonly detected within the BSA include snowy egret (*Egretta thula*), house finch (*Carpodacus mexicanus*), mallard (*Anas platyrhynchos*), great egret (*Ardea alba*), Anna's hummingbird (*Calypte anna*), double-crested cormorant (*Phalacrocorax auritus*), willet (*Catoptrophorus semipalmatus*), song sparrow (*Melospiza melodia*), gadwall (*Anas strepera*), black phoebe (*Sayornis nigricans*), California towhee (*Pipilo crissalis*), American wigeon (*Anas americana*), mourning dove (*Zenaida macroura*), bushtit (*Psaltiriparus minimus*), great blue heron (*Ardea herodias*), savannah sparrow (*Passerculus sandwichensis*), American crow (*Corvus brachyrhynchos*), whimbrel (*Numenius phaeopus*), western scrub-jay (*Aphelocoma californica*), American coot (*Fulica americana*), northern mockingbird (*Mimus polyglottos*), pied-billed grebe (*Podilymbus podiceps*), marbled godwit (*Limosa fedoa*), common yellowthroat (*Geothlypis trichas*), white-crowned sparrow (*Zonotrichia leucophrys*), northern shoveler (*Anas clypeata*), spotted towhee (*Pipilo maculatus*), yellow-rumped warbler (*Dendroica coronata*), lesser goldfinch (*Carduelis psaltria*), house sparrow (*Passer domesticus*), and red-tailed hawk (*Buteo jamaicensis*). A complete list of avian species detected during monthly bird counts and the BioBlitz is included in Appendix B.

## **Mammals**

Several species of mammals use the upland habitat surrounding the lagoon. Additionally, numerous flying insects around the lagoon provide foraging opportunities for several bat species. Mammal species detected within the BSA include red bat (*Lasiurus borealis*), Yuma myotis (*Myotis yumanensis*), western mastiff bat (*Eumops perotis*), Mexican free-tailed bat (*Tadarida brasiliensis*), coyote (*Canis latrans*), striped skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), mule deer (*Odocoileus hemionus*), California ground squirrel (*Spermophilus beecheyi*), pocket gopher (*Thomomys bottae*), dusky-footed woodrat (*Neotoma fuscipes*), and desert cottontail (*Sylvilagus audubonii*).

### **3.4.2 Special-Status Species**

Based on a CNDDDB search and literature review, 98 special-status wildlife species have potential to occur within the BSA (CDFG 2011; BioBlitz 2009; Patton 2010; SELC 2011; MEC 2002). Table 3-5 provides a summary of the special-status species known or potentially occurring with the BSA. Location data that were available for special-status wildlife species detected in the BSA are shown in Figures 3-3 through 3-6. Because of the biodiversity within the lagoon, special-status species, where suitable breeding habitat has been determined present on-site, were given particular attention within this report. Detailed discussions of special-status wildlife species detected during studies (Section 2.2.4 and considered resident/breeding within the BSA are provided below and summarized in Table 3-5. Those special-status species with potential to

occur but would be considered migrants/nonbreeding season residents (no suitable breeding habitat is present on-site), are only discussed in Table 3-5; they are not discussed further in the text. Note that species are considered present (detected) within the BSA if they were detected during the studies outlined in Section 2.2.4 Table 2-3.

**Table 3-5**  
**Special-Status Species Potentially Occurring or Known to Occur in the BSA**

| Common Name<br>Scientific Name  | Sensitivity<br>Status <sup>1</sup>  | Habitat Requirements  | Detected<br>(D) or<br>Not<br>Detected<br>(ND) <sup>2</sup> | Potential<br>to Breed<br>within<br>BSA | Probability of Occurrence   |
|---|---|---|--|--|---|
| <b>Invertebrates</b>  |   |   |  |  |   |
| western beach<br>tiger beetle<br><i>Cicindela<br/>latesignata<br/>latesignata</i> | City MHCP:<br>Covered   | Coastal salt marshes and<br>mud flats.  | ND   | Yes                                    | Moderate – Closest<br>documented locations are<br>from 1984 on Coronado<br>Island (CDFG 2011).  |
| globose dune<br>beetle<br><i>Coelus globosus</i>                                  | City MHCP:<br>Covered   | Coastal dune habitat and<br>sand hummocks<br>immediately along the<br>coast. Burrows in the<br>sand and is often found<br>under dune vegetation.  | ND   | Yes                                    | Moderate – Populations are<br>reported in the Tijuana<br>Estuary and San Onofre State<br>Beach (SBMNH 2011).  |
| sandy beach tiger<br>beetle<br><i>Cicindela<br/>hirticollis gravid</i>            | City MHCP:<br>Covered   | Dune habitat near the<br>ocean with moist sand.   | ND   | Yes                                    | Moderate – Closest CNDDDB<br>location is from Del Mar in<br>1979 and this location is<br>considered extirpated (CDFG<br>2011). Other locations are<br>south in Mission Bay and<br>north in Santa Barbara<br>(CDFG 2011; SBMNH<br>2011). |
| wandering<br>(=saltmarsh)<br>skipper<br><i>Panoquina errans</i>                   | City MHCP:<br>Covered   | Restricted to estuarine<br>and tideland habitats<br>where adults are often<br>associated with salt<br>grass ( <i>Distichlis<br/>spicata</i> ).  | D  | Yes                                    | Known to occur – Suitable<br>habitat within the BSA.<br>Thirteen individuals were<br>detected during surveys in<br>July 2010.   |
| <b>Reptiles and Amphibians</b>  |   |   |  |  |   |
| western spadefoot<br>toad<br><i>Spea<br/>(Sacphiopus)<br/>hammondii</i>           | CDFW:<br>Species of<br>Special<br>Concern<br>North<br>County<br>MSCP:<br>Covered<br>City MHCP:<br>Covered | Temporary ponds,<br>vernal pools, and<br>backwaters of slow-<br>flowing creeks. Also<br>upland habitats such as<br>grasslands and coastal<br>sage scrub where<br>burrows are constructed. | ND   | Yes                                    | High – Detected adjacent to<br>the East Basin in December<br>2001 (MEC 2002).   |

| <b>Common Name<br/>Scientific Name</b>  | <b>Sensitivity<br/>Status<sup>1</sup></b>   | <b>Habitat Requirements</b>   | <b>Detected<br/>(D) or<br/>Not<br/>Detected<br/>(ND)<sup>2</sup></b> | <b>Potential<br/>to Breed<br/>within<br/>BSA</b> | <b>Probability of Occurrence</b>  |
|---|---|---|--|--|---|
| southwestern<br>pond turtle<br><i>Actinemys<br/>marmorata pallid</i>                  | CDFW:<br>Species of<br>Special<br>Concern<br>North<br>County<br>MSCP:<br>Covered                          | Associated with<br>permanent water or<br>nearly permanent water<br>from sea level to 6,000<br>feet. Prefers habitats<br>with basking sites such<br>as floating mats of<br>vegetation, partially<br>submerged logs, rocks,<br>or open mud banks. | ND   | Yes  | Moderate – Suitable habitat<br>for this species occurs within<br>the BSA; however, this<br>species has an extremely<br>limited range distribution.<br>Closest documented location<br>is at Lake Hodges<br>approximately 8 miles east<br>(CDFG 2011).  |
| green sea turtle<br>( <i>Chelonia mydas</i> )   | USFWS:<br>Endangered<br>and<br>Threatened   | Often found from July<br>through September off<br>the coast of California.<br>A population is known<br>to occur within South<br>San Diego Bay year-<br>round. Prefers eelgrass<br>beds as forage and<br>influx of warmer waters.                | ND   | No   | Low potential occur.<br>Resident population in San<br>Diego Bay and occurrences<br>documented in Mission Bay<br>to the south. Rooted<br>submerged aquatic plants are<br>present such as surfgrass and<br>widgeongrass that sea turtles<br>may forage on.  |
| loggerhead sea<br>turtle ( <i>Caretta<br/>caretta</i> )                               | USFWS:<br>Endangered<br>and<br>Threatened   | The California coast is<br>part of the migratory<br>range of the North<br>Pacific population<br>segment of loggerheads.<br>As an omnivore, prefers<br>hard-shelled benthic<br>invertebrates, foraging<br>in nearshore habitats.                 | ND   | No   | Very low potential to occur<br>within the BSA during high<br>tide. Potential prey items<br>such as striped shore crabs<br>( <i>Pachygrapsus crassipes</i> )<br>and California horn snails<br>( <i>Cerithidea californica</i> ) have<br>been observed within the<br>BSA, which loggerheads<br>may forage within. |
| San Diego coast<br>horned lizard<br><i>Phrynosoma<br/>coronatum<br/>(blainvillei)</i> | CDFW:<br>Species of<br>Special<br>Concern<br>North<br>County<br>MSCP:<br>Covered<br>City MHCP:<br>Covered | A variety of habitats<br>including sage scrub,<br>chaparral, and<br>coniferous and broadleaf<br>woodlands (Stebbins<br>2003). Found on sandy<br>or friable soils with open<br>scrub. Requires open<br>areas, bushes, and fine<br>loose soil.    | ND   | Yes  | High – Suitable habitat is<br>present within the upland<br>scrub habitat within the BSA.<br>Individuals were detected<br>prior to 2002 south of the<br>lagoon east and west of<br>Interstate 5 (MEC 2002).  |
| Coronado skink<br><i>Eumeces<br/>skitonianus<br/>interparietalis</i>                  | CDFW:<br>Species of<br>Special<br>Concern   | Most commonly found<br>in open areas, sparse<br>brush, and in oak<br>woodlands, usually<br>under rocks, leaf litter,<br>logs, debris, or in the<br>shallow burrows it digs<br>(CDFG 1988).  | ND   | Yes  | High – Suitable habitat is<br>present within the nonnative<br>grassland and coastal sage<br>scrub habitat in the BSA.<br>Individuals were detected<br>prior to 2002 south of the<br>lagoon (MEC 2002).  |

| <b>Common Name<br/>Scientific Name</b>   | <b>Sensitivity<br/>Status<sup>1</sup></b>   | <b>Habitat Requirements</b>   | <b>Detected<br/>(D) or<br/>Not<br/>Detected<br/>(ND)<sup>2</sup></b> | <b>Potential<br/>to Breed<br/>within<br/>BSA</b> | <b>Probability of Occurrence</b>   |
|--|---|---|--|--|--|
| orange-throated<br>whiptail<br><i>Aspidoscelis<br/>hyperythra<br/>beldingi</i> | CDFW:<br>Species of<br>Special<br>Concern<br>North<br>County<br>MSCP:<br>Covered<br>City MHCP:<br>Covered | A variety of habitats<br>including sage scrub,<br>chaparral, and<br>coniferous and broadleaf<br>woodlands (Stebbins<br>2003). Found on sandy<br>or friable soils with open<br>scrub. Requires open<br>areas, bushes, and fine<br>loose soil.  | D  | Yes  | Known to Occur – This<br>species was detected within<br>the BSA during the BioBlitz<br>(2009).   |
| silvery legless<br>lizard<br><i>Anniella pulchra<br/>pulchra</i>               | CDFW:<br>Species of<br>Special<br>Concern   | Loose soil in a number<br>of vegetation<br>communities including<br>coastal dunes; chaparral;<br>pine-oak woodland; and<br>streamside growth of<br>sycamores,<br>cottonwoods, or oaks.<br>Small shrubs such as<br>bush lupine ( <i>Lupinus</i><br>sp.) growing in sandy<br>soils indicate suitable<br>conditions. Occurs often<br>near intermittent and<br>permanent streams. | D  | Yes  | Known to Occur – This<br>species was detected within<br>the BSA during the BioBlitz<br>(2009).   |
| coast patch-nosed<br>snake<br><i>Salvadora<br/>hexalepis<br/>virgultea</i>     | CDFW:<br>Species of<br>Special<br>Concern   | A variety of habitats<br>including coastal sage<br>scrub, chaparral,<br>riparian, grasslands, and<br>agricultural fields<br>(CDFG 1988). Prefers<br>open habitats with<br>friable or sandy soils,<br>burrowing rodents for<br>food, and enough cover<br>to escape predation.  | ND   | Yes  | Moderate – Suitable habitat<br>present; however, this<br>species is sensitive to<br>fragmentation and edge<br>effects from urban habitat.<br>The closest documented<br>location is at Del Dios Open<br>Space Reserve approximately<br>9 miles to the northeast<br>(CDFG 2011). |
| two-striped<br>gartersnake<br><i>Thamnophis<br/>hammondi</i>                   | CDFW:<br>Species of<br>Special<br>Concern<br>North<br>County<br>MSCP:<br>Covered                          | Aquatic habitats,<br>preferably rocky streams<br>with protected pools,<br>cattle ponds, marshes,<br>vernal pools, and other<br>shallow bodies of water<br>lacking large aquatic<br>predators.   | ND   | Yes  | High – Individuals were<br>detected prior to 2002 in the<br>Central and East Basins of<br>the BSA (MEC 2002).  |

| <b>Common Name<br/>Scientific Name</b>                         | <b>Sensitivity<br/>Status<sup>1</sup></b>  | <b>Habitat Requirements</b>  | <b>Detected<br/>(D) or<br/>Not<br/>Detected<br/>(ND)<sup>2</sup></b> | <b>Potential<br/>to Breed<br/>within<br/>BSA</b> | <b>Probability of Occurrence</b>   |
|--|--|--|--|--|--|
| red-diamond<br>rattlesnake<br><i>Crotalus ruber<br/>ruber</i>  | CDFW:<br>Species of<br>Special<br>Concern<br>North<br>County<br>MSCP:<br>Covered | Chaparral, coastal sage<br>scrub, along creek<br>banks, and in rock<br>outcrops or piles of<br>debris. Habitat<br>preferences include<br>dense vegetation in<br>rocky areas.                     | ND   | Yes  | Moderate – Habitat is present<br>within the BSA: however,<br>this species is sensitive to<br>edge effects. The closest<br>documented location is<br>approximately 6 miles to the<br>east in Rancho Santa Fe just<br>west of Camino Del Sur<br>(CDFG 2011). |
| <b>Birds</b>   |  |  |  |  |  |
| brant<br><i>Branta bernicla</i>                                | CDFW:<br>Species of<br>Special<br>Concern<br>(wintering,<br>staging)             | Breeds in the high<br>Arctic. Winters along<br>the coast and within<br>estuaries on the Pacific<br>coast. Feeds on eelgrass<br>and seaweed within<br>estuaries.                                  | D  | No   | Known to Occur – Detected<br>during the BioBlitz (2009).<br>Occurs within the BSA<br>during winter or migration<br>(Unitt 2004).   |
| redhead<br><i>Aythya<br/>americana</i>                         | CDFW:<br>Species of<br>Special<br>Concern<br>(nesting)                           | Breeding habitat is<br>marshes and prairie<br>potholes in western<br>North America. Winters<br>in Mission Bay but has<br>been recorded breeding<br>in north coastal area of<br>San Diego County. | ND   | Yes  | Moderate – Bred within the<br>BSA in 1976 (SELC 2011;<br>Unitt 2004).  |
| common loon<br><i>Gavia immer</i>                              | CDFW:<br>Species of<br>Special<br>Concern<br>(nesting)                           | Widespread along the<br>coast both in the ocean<br>and within tidal bays<br>and estuaries.   | D  | No   | Known to Occur – Detected<br>during the BioBlitz (2009).<br>Common winter resident in<br>San Diego County but does<br>not breed within the BSA<br>(Unitt 2004).  |
| fork-tailed storm-<br>petrel<br><i>Oceanodroma<br/>furcata</i> | CDFW:<br>Species of<br>Special<br>Concern<br>(nesting)                           | This species breeds in<br>Alaska, Canada, and<br>northwestern North<br>America with Humboldt<br>County being the<br>southern limit of the<br>species' breeding range.<br>Offshore typically.     | ND   | No   | Low – Historically detected<br>within the BSA; however,<br>the last detection date is<br>unknown (SELC 2011).<br>Does not breed in San Diego<br>County (Unitt 2004).   |
| black storm-<br>petrel<br><i>Oceanodroma<br/>melania</i>       | CDFW:<br>Species of<br>Special<br>Concern<br>(nesting)                           | Breeds on small rocky<br>islands or talus slopes of<br>larger islands. Breeding<br>colonies located on<br>offshore islands of Los<br>Coronados in Baja<br>California Mexico (Unitt<br>2004).     | ND   | No   | Low – Not typically seen<br>near the shore. Historically<br>detected within the BSA;<br>however, the last detection<br>date is unknown (SELC<br>2011).   |

| <b>Common Name<br/>Scientific Name</b>  | <b>Sensitivity<br/>Status<sup>1</sup></b>                         | <b>Habitat Requirements</b>   | <b>Detected<br/>(D) or<br/>Not<br/>Detected<br/>(ND)<sup>2</sup></b> | <b>Potential<br/>to Breed<br/>within<br/>BSA</b> | <b>Probability of Occurrence</b>   |
|---|---|---|--|--|--|
| wood stork<br><i>Mycerterua<br/>anerucana</i>                                     | CDFW:<br>Species of<br>Special<br>Concern                         | Freshwater marsh and<br>mudflats.   | ND   | No   | Moderate – Historically<br>detected within the BSA<br>(SELC 2011). There are no<br>recent records at San Elijo,<br>but one to two have been<br>resident in the county since<br>1986 and nesting attempts<br>have been documented at the<br>San Diego Safari Park<br>formerly Wild Animal Park<br>(Unitt 2004). |
| double-crested<br>cormorant<br><i>Phalacrocorax<br/>auritus</i>                   | CDFW:<br>Watch List<br>(nesting)                                  | This species is found in<br>marine and estuary<br>environments. Needs<br>water and perching areas<br>to dry out.  | D  | No   | Known to Occur – Detected<br>during the BioBlitz (2009)<br>and monthly bird counts.<br>Foraging habitat within the<br>BSA. Breeding has not been<br>confirmed within the BSA<br>(Unitt 2004). Known to nest<br>on cliffs in La Jolla and<br>offshore islands (Unitt 2004).                                     |
| American white<br>pelican<br><i>Pelecanus<br/>erythrorhynchos</i>                 | CDFW:<br>Species of<br>Special<br>Concern<br>(nesting)            | Breeds in northeastern<br>California, winters<br>throughout central and<br>southern California.<br>Rivers, lakes, estuaries,<br>bays, marshes, and nests<br>usually in brackish or<br>freshwater lake islands.  | D  | No   | Known to Occur – Detected<br>during monthly bird counts<br>and historically detected<br>within the BSA (SELC<br>2011). This species is a<br>migrant visitor within the<br>BSA.   |
| California brown<br>pelican<br><i>Pelecanus<br/>occidentalis<br/>californicus</i> | CDFW:<br>Fully<br>Protected<br>(nesting)<br>City MHCP:<br>Covered | Common along the coast<br>where they dive for fish.<br>Known to congregate in<br>areas that provide secure<br>roost sites such as<br>coastal bluffs, or man-<br>made structures near<br>fertile fishing grounds.<br>Breeds on dry, rocky<br>offshore islands in<br>northern Gulf of<br>California and along<br>Pacific coast of<br>California and Baja<br>California. | D  | No   | Known to Occur – Detected<br>during the BioBlitz (2009)<br>and monthly bird counts.<br>Winter and migrate within<br>the BSA. The nesting colony<br>nearest to San Diego County<br>is on the Los Coronados<br>Islands off Tijuana (Unitt<br>2004).  |
| least bittern<br><i>Ixobrychus exilis</i>   | CDFW:<br>Species of<br>Special<br>Concern<br>(nesting)            | Marsh habitats or large<br>emergent wetlands with<br>cattails ( <i>Typha</i> sp.) and<br>tules.   | ND   | Yes  | Moderate – Nesting within<br>the BSA was last<br>documented in 1982 (SELC<br>2011). Least bitterns are<br>historically known to nest<br>within the BSA (King et al.<br>1987).  |



| <b>Common Name<br/>Scientific Name</b>                          | <b>Sensitivity<br/>Status<sup>1</sup></b>  | <b>Habitat Requirements</b>  | <b>Detected<br/>(D) or<br/>Not<br/>Detected<br/>(ND)<sup>2</sup></b> | <b>Potential<br/>to Breed<br/>within<br/>BSA</b> | <b>Probability of Occurrence</b>  |
|---|--|--|--|--|---|
| white faced ibis<br><i>Plegadis chihi</i>                       | CDFW:<br>Watch List<br>North<br>County<br>MSCP:<br>Covered City<br>MHCP:<br>Covered  | Found in shallow areas of freshwater marshes and wet grass. Colonial nesters, with two known colonies in San Diego County, along Guajome Lake and near a pond in San Luis Rey River valley.  | D  | No   | Known to Occur – Detected during monthly bird counts. Only two known nesting colonies (Guajome Lake and San Luis Rey River) in San Diego County. Foraging habitat present within the BSA. |
| light-footed clapper rail<br><i>Rallus longirostris levipes</i> | USFWS:<br>Endangered<br>CDFW:<br>Endangered, Fully Protected<br>North<br>County<br>MSCP:<br>Covered City<br>MHCP:<br>Covered | Found in southern California in coastal salt marshes, especially those dominated by cordgrass. The Tijuana River estuary is an especially important site.  | D  | Yes  | Known to Occur – Detected during species-specific surveys (Zemba et al. 2011 and 2013) and monthly bird counts. Suitable breeding habitat exists within the BSA (Patton 2010).            |
| sandhill crane<br><i>Crus canadensis</i>                        | CDFW:<br>Species of Special Concern or Fully Protected (nesting)   | Winter residents or visitors. Typical in farm fields and marsh areas.  | ND   | No   | Low – Only one confirmed spring migrant at San Elijo Lagoon in 1998 (Unitt 2004).   |
| western snowy plover<br><i>Charadrius alexandrinus nivosus</i>  | USFWS:<br>Threatened<br>CDFW:<br>Species of Special Concern<br>City MHCP:<br>Covered   | Nests on beaches, dunes, and salt flats in San Diego County, with the highest concentrations in two areas: Marine Corps Base Camp Pendleton and Silver Strand. Outside the breeding season species is more widespread but not common along the county's coast. | D  | Yes  | Known to Occur – Detected during monthly bird counts. Historically nested within the BSA and the last documented breeding attempt was in 2002 (Patton 2002).                              |
| long-billed curlew<br><i>Numenius americanus</i>                | USFWS:<br>BCC<br>CDFW:<br>Watch List<br>City MHCP:<br>Covered  | Nests primarily in short-grass or mixed-prairie habitat with flat to rolling topography.   | D  | No   | Known to Occur – Detected during the BioBlitz (2009) and monthly bird counts. San Diego County is outside this species' breeding range (Unitt 2004).                                      |

| <b>Common Name<br/>Scientific Name</b>                     | <b>Sensitivity<br/>Status<sup>1</sup></b>   | <b>Habitat Requirements</b>  | <b>Detected<br/>(D) or<br/>Not<br/>Detected<br/>(ND)<sup>2</sup></b> | <b>Potential<br/>to Breed<br/>within<br/>BSA</b> | <b>Probability of Occurrence</b>  |
|--|---|--|--|--|---|
| laughing gull<br><i>Larus atricilla</i>                    | CDFW:<br>Watch List<br>(nesting)  | Nests on sandy or rocky shores and on salt-marsh islands.  | ND   | No   | Low – Historically detected within the BSA; however, the last detection date is unknown (SELC 2011). San Diego County is outside this species' breeding range (Unitt 2004).                                       |
| California gull<br><i>Larus californicus</i>               | CDFW:<br>Watch List<br>(nesting)  | Breeding colonies nearly always on islands on natural lakes or rivers or in reservoirs, which vary from fresh oligotrophic lakes and rivers to saline lakes.                             | D  | No   | Known to Occur – Detected during the BioBlitz (2009) and monthly bird counts. Only nonbreeding individuals are present in San Diego County (Unitt 2004).  |
| California least tern<br><i>Sternula antillarum browni</i> | USFWS:<br>Endangered<br>CDFW:<br>Endangered, Fully Protected (nesting)<br>City MHCP:<br>Covered | A ground nesting bird that requires undisturbed stretches of beach and coastline. Adults are highly philopatric to natal colonies, and forage in bays and estuaries near their colonies. | D  | Yes  | Known to Occur – Detected during species-specific surveys (Patton 2011, 2012b) and monthly bird counts. Historically nested within the BSA (Patton 2010). Suitable nesting habitat is present within the BSA.     |
| gull-billed tern<br><i>Gelochelidon nilotica</i>           | USFWS:<br>BCC<br>CDFW:<br>Species of Special Concern (nesting)                                  | Most pairs nest on sandy beaches or on sandy barrier islands in coastal waters, especially near ocean inlets.  | ND   | No   | Low – Last detected within the BSA in 1988 (MEC 2002; SELC 2011). Only known to breed in San Diego Bay (Unitt 2004).  |
| black tern<br><i>Chlidonias niger</i>                      | CDFW:<br>Species of Special Concern (nesting)   | Nests in colonies within marshes.  | ND   | No   | Low – Last detected within the BSA in 1997 (SELC 2011). Closest nesting colony is in Central Valley and is only migrant visitor (Unitt 2004).   |
| elegant tern<br><i>Sterna elegans</i>                      | CDFW:<br>Watch List (nesting)<br>City MHCP:<br>Covered  | Intensely gregarious. Feeds on off shore fish, principally anchovies.  | D  | No   | Known to Occur – Detected during monthly bird counts. Abundant visitor to San Diego County's coast; nesting has not been confirmed within the BSA (Unitt 2004). Only known to nest in San Diego Bay (Unitt 2004). |

| <b>Common Name<br/>Scientific Name</b>                           | <b>Sensitivity<br/>Status<sup>1</sup></b>  | <b>Habitat Requirements</b>   | <b>Detected<br/>(D) or<br/>Not<br/>Detected<br/>(ND)<sup>2</sup></b> | <b>Potential<br/>to Breed<br/>within<br/>BSA</b> | <b>Probability of Occurrence</b>   |
|--|--|---|--|--|--|
| black rail<br><i>Laterallus<br/>jameicensis<br/>coturniculus</i> | USFWS:<br>BCC<br>CDFW:<br>Threatened   | Found in southern California coastal marshes.   | ND   | No   | Low – Historically detected within the BSA; however, the last detection date is unknown (SELC 2011). The species is extirpated from San Diego County (Unitt 2004).   |
| black skimmer<br><i>Rynchops niger</i>                           | USFWS:<br>BCC<br>CDFW:<br>Species of<br>Special<br>Concern<br>(nesting)                          | Breeds in loose groups on sand banks or bare dirt areas near water sources. May utilize the same habitat as terns.  | D  | No   | Known to Occur – Detected during monthly bird counts. Breeding has not been confirmed within the BSA and observations are presumed migrants or nonbreeding individuals (Unitt 2004).   |
| Cassin's auklet<br><i>Ptychoramphus<br/>aleuticus</i>            | USFWS:<br>BCC<br>CDFW:<br>Species of<br>Special<br>Concern<br>(nesting)                          | A small stocky seabird that nests in colonies on islands from Alaska to Mexico. Feeds on plankton in the open ocean. Rarely seen from shore.  | ND   | No   | Low – Historically detected within the BSA; however, the last detection date is unknown (SELC 2011). Does not breed onshore within San Diego County (Unitt 2004).  |
| Xantu's murrelet<br><i>Synthliboramphus<br/>hypoleucus</i>       | USFWS:<br>Candidate,<br>BCC<br>CDFW:<br>Threatened<br>(nesting)                                  | An offshore species along the west coast. Breeds on islands off of southern California and Baja, Mexico.  | ND   | No   | Moderate – Historically detected within the BSA; however, the last detection date is unknown (SELC 2011). Does not breed in San Diego County (Unitt 2004). Nearest breeding colony is on Los Coronados Islands (Unitt 2004). |
| rhinoceros auklet<br><i>Cerorhinca<br/>monocerata</i>            | CDFW:<br>Watch List<br>(nesting)   | Breeds colonially on islands up to several thousand acres, either forested or covered in grass or dense forbs.  | ND   | No   | Moderate – Historically detected and bred within the BSA (SELC 2011). San Diego County is outside this species' breeding range (Unitt 2004).   |
| osprey<br><i>Pandion<br/>haliaetus</i>                           | CDFW:<br>Watch List<br>(nesting)<br>North<br>County<br>MSCP:<br>Covered City<br>MHCP:<br>Covered | Primarily along rivers, lakes, reservoirs, and seacoasts, occurring widely in migration, often crossing land between bodies of water. Nests in dead snags, live trees, cliffs, utility poles, wooden platforms, channel buoys, chimneys, windmills, etc. Usually near or above water. | D  | Yes  | Known to Occur – Detected during the BioBlitz (2009) and monthly bird counts. Suitable foraging and breeding habitat is present within the BSA.  |

| <b>Common Name<br/>Scientific Name</b>                     | <b>Sensitivity<br/>Status<sup>1</sup></b>  | <b>Habitat Requirements</b>  | <b>Detected<br/>(D) or<br/>Not<br/>Detected<br/>(ND)<sup>2</sup></b> | <b>Potential<br/>to Breed<br/>within<br/>BSA</b> | <b>Probability of Occurrence</b>   |
|--|--|--|--|--|--|
| white-tailed kite<br><i>Elanus leucurus<br/>majusculus</i> | CDFW:<br>Fully<br>Protected<br>(nesting and<br>wintering)  | Widespread over the coastal slope of San Diego County preferring riparian woodlands, oak groves, or sycamore groves, adjacent to grasslands.   | D  | Yes  | Known to Occur – Detected during the BioBlitz (2009) and monthly bird counts. Breeding has been documented within the BSA (Unitt 2004). Suitable nesting and foraging habitat occurs throughout the BSA. |
| northern harrier<br><i>Circus cyaneus</i>                  | CDFW:<br>Species of<br>Special<br>Concern<br>(nesting)<br>North<br>County<br>MSCP:<br>Covered City<br>MHCP:<br>Covered | Breeds predominantly in wetland habitats but will also use upland habitats. Prefers grasslands and agricultural fields during migration and in winter.   | D  | Yes  | Known to Occur – Detected during monthly bird counts. Suitable nesting and foraging habitat occurs throughout the BSA.   |
| sharp-shinned hawk<br><i>Accipiter striatus</i>            | CDFW:<br>Watch List  | A winter visitor, distributed over the coastal slope of San Diego County. The habitat of this species encompasses a variety of vegetation communities and land covers. It requires a certain amount of dense cover, but this can be localized and scattered through relatively open country. | D  | No   | Known to Occur – Detected during monthly bird counts. Suitable migratory and wintering habitat for the species occurs within the BSA. It is unlikely that this species nests within the BSA.             |
| Cooper's hawk<br><i>Accipiter cooperi</i>                  | CDFW:<br>Watch List<br>(nesting)<br>City MHCP:<br>Covered  | Usually in oak woodlands, but occasionally in willow or eucalyptus woodlands.  | D  | Yes  | High – Detected during the BioBlitz (2009) and monthly bird counts. Nesting habitat is present within the BSA.   |
| ferruginous hawk<br><i>Buteo regalis</i>                   | USFWS:<br>BCC<br>CDFW:<br>Watch List<br>(wintering)  | Open country, primarily plains, prairies, badlands, sagebrush, shrubland, and desert.  | ND   | No   | Moderate – Last detected within the BSA prior to 2002 (MEC 2002; SELC 2011). No suitable breeding habitat within the BSA.  |

| <b>Common Name<br/>Scientific Name</b>                             | <b>Sensitivity<br/>Status<sup>1</sup></b>   | <b>Habitat Requirements</b>   | <b>Detected<br/>(D) or<br/>Not<br/>Detected<br/>(ND)<sup>2</sup></b> | <b>Potential<br/>to Breed<br/>within<br/>BSA</b> | <b>Probability of Occurrence</b>  |
|--|---|---|--|--|---|
| golden eagle<br><i>Aquila chrysaetos</i>                           | USFWS:<br>BCC CDFW:<br>Fully<br>Protected and<br>Watch List<br>(nesting and<br>wintering)<br>North<br>County<br>MSCP:<br>Covered City<br>MHCP:<br>Covered | Nests on cliff ledges and<br>trees on steep slopes.<br>Hunts for prey in nearby<br>grasslands, sage scrub,<br>or broken chaparral.<br>Requires very large<br>territories. | ND   | No   | Not Expected – Last detected<br>within the BSA in the 1950s<br>(MEC 2002; SELC 2011).<br>Breeding has not been<br>confirmed within the BSA<br>(Unitt 2004). Suitable<br>foraging habitat occurs in<br>upland portions of the BSA.                   |
| bald eagle<br><i>Haliaeetus<br/>leucocephalus</i>                  | USFWS:<br>BCC CDFW;<br>Endangered,<br>Fully<br>Protected<br>(nesting and<br>wintering)  | Nests in old growth trees<br>near the coast or other<br>bodies of water where<br>fish are available.  | ND   | No   | Low – A tagged juvenile<br>from Catalina Island was<br>detected within the BSA in<br>January 2001 (MEC 2002;<br>SELC 2011). Rare annual<br>winter visitor to San Diego<br>County (Unitt 2004). No<br>suitable nesting habitat<br>within the BSA.    |
| merlin<br><i>Falco<br/>columbarius</i>                             | CDFW:<br>Watch List<br>(wintering)  | Marshes, deserts,<br>seacoasts, near coastal<br>lakes and lagoons, open<br>woodlands, fields, etc.<br>May roost in conifers.  | D  | No   | Known to Occur – Detected<br>during monthly bird counts.<br>San Diego County is outside<br>this species' breeding range<br>(Unitt 2004).  |
| American<br>peregrine falcon<br><i>Falco peregrinus<br/>anatum</i> | USFWS:<br>BCC CDFW:<br>Fully<br>Protected<br>(nesting)<br>City MHCP:<br>Covered   | Open areas from tundra,<br>moorlands, steppe, and<br>seacoasts to mountains<br>and open forested<br>regions, especially<br>where there are suitable<br>nesting cliffs.    | D  | No   | Known to Occur – Detected<br>during monthly bird counts<br>and historically detected<br>within the BSA (SELC<br>2011). This species is likely<br>a migrant or wintering bird<br>(Unitt 2004). Suitable<br>nesting habitat does not exist<br>in BSA. |
| prairie falcon<br><i>Falco mexicanus</i>                           | USFWS:<br>BCC<br>CDFW:<br>Watch List<br>(nesting)   | Forages in open<br>grasslands, agricultural<br>fields, and desert scrub.<br>Prefers ledges on rocky<br>cliffs for nesting.  | ND   | No   | Low – Last detected within<br>the BSA in 1987 (MEC<br>2002; SELC 2011). All<br>known nest sites in San<br>Diego County are at least 23<br>miles from the coast (Unitt<br>2004). May be a winter<br>visitor.   |

| <b>Common Name<br/>Scientific Name</b>                | <b>Sensitivity<br/>Status<sup>1</sup></b>   | <b>Habitat Requirements</b>  | <b>Detected<br/>(D) or<br/>Not<br/>Detected<br/>(ND)<sup>2</sup></b> | <b>Potential<br/>to Breed<br/>within<br/>BSA</b> | <b>Probability of Occurrence</b>  |
|---|---|--|--|--|---|
| burrowing owl<br><i>Athene cunicularia</i>            | USFWS:<br>BCC<br>CDFW:<br>Species of<br>Special<br>Concern<br>(nesting)<br>North<br>County<br>MSCP:<br>Covered City<br>MHCP:<br>Covered | Found mainly in grassland and open scrub from the seashore to foothills. Strongly associated with California ground squirrel ( <i>Spermophilus beecheyi</i> ) burrows.   | ND   | Yes  | Low – Last detected within the BSA in 1980 (MEC 2002; SELC 2011). Nearest CNDDDB location is by Del Mar (CDFG 2011). Breeding has not been confirmed within the BSA (Unitt 2004) and the habitat within the BSA is low quality. |
| long-eared owl<br><i>Asio otus</i><br>(nesting sites) | CDFW:<br>Species of<br>Special<br>Concern<br>(nesting)  | Primarily in dense oak and riparian woodland and at the edges of coniferous forests. Typically nests in trees, often in the abandoned nests of corvids or other raptors. | ND   | Yes  | Low – Last detected within the BSA in 1993 (MEC 2002; SELC 2011). Breeding has not been confirmed within the BSA (Unitt 2004). Low-quality breeding habitat present within the BSA.   |
| short-eared owl<br><i>Asio flammeus</i>               | CDFW:<br>Species of<br>Special<br>Concern<br>(nesting)  | Primarily nests in marshes and grassland.  | ND   | No   | Low – Last detected within the BSA in 1997 (MEC 2002; SELC 2011). Only confirmed breeding is from 1906 at San Diego Bay (Unitt 2004).   |
| black swift<br><i>Cypseloides niger</i>               | USFWS:<br>BCC<br>CDFW:<br>Species of<br>Special<br>Concern<br>(nesting)   | Nests only around waterfalls and sea cliffs.   | ND   | No   | Low – Last detected within the BSA in 1988 (MEC 2002; SELC 2011). No breeding sites in San Diego County and only occurs as a rare migrant (Unitt 2004).   |
| Vaux's swift<br><i>Chaetura vauxi</i>                 | USFWS:<br>BCC<br>CDFW:<br>Species of<br>Special<br>Concern<br>(nesting)   | A common migrant in San Diego County during migration from wintering grounds to breeding grounds in the northwest.   | D  | No   | Known to Occur – Detected during the monthly bird counts. This species is a migrant and does not breed in San Diego County (Unitt 2004).  |
| olive-sided flycatcher<br><i>Contopus cooperi</i>     | USFWS:<br>BCC<br>CDFW:<br>Watch List<br>(nesting)   | An uncommon summer resident of coniferous woodlands in San Diego County.   | D  | No   | Known to Occur – Detected during the BioBlitz (2009). Once nested within the BSA in 1982 (Unitt 2004), but habitat within the BSA is not typical for this species and breeding is not expected to occur.                        |



| <b>Common Name<br/>Scientific Name</b>                                     | <b>Sensitivity<br/>Status<sup>1</sup></b>  | <b>Habitat Requirements</b>  | <b>Detected<br/>(D) or<br/>Not<br/>Detected<br/>(ND)<sup>2</sup></b> | <b>Potential<br/>to Breed<br/>within<br/>BSA</b> | <b>Probability of Occurrence</b>   |
|--|--|--|--|--|--|
| southwestern<br>willow flycatcher<br><i>Empidonax<br/>traillii extimus</i> | USFWS:<br>Endangered<br>CDFW:<br>Endangered<br>(nesting)<br>North<br>County<br>MSCP:<br>Covered City<br>MHCP:<br>Covered | Restricted to a few colonies in riparian woodlands scattered throughout southern California. Riparian forests are integral to this species' persistence.   | D  | Yes  | Known to Occur – Historically detected within the BSA, with most recent observation from 2011 (Patton 2012a). Breeding has not been confirmed within the BSA (Unitt 2004).   |
| Vermilion<br>flycatcher<br><i>Pyrocephalus<br/>rubinus</i>                 | CDFW:<br>Species of<br>Special<br>Concern<br>(nesting)   | Prefers open riparian woodland, arid lands, and mesquite bosques on desert floodplains. Nests in native trees such as willows and cottonwoods.   | ND   | No   | Low – Historically detected within the BSA (SELC 2011). Because of the known migration and nesting ranges of the species, the species is considered a rare occurrence in the BSA and is not likely to nest within the BSA. |
| loggerhead shrike<br><i>Lanius<br/>ludovicianus</i>                        | USFWS:<br>BCC<br>CDFW:<br>Species of<br>Special<br>Concern<br>(nesting)  | Uncommon year- round resident of San Diego County. Found in grassland, chaparral, desert, and desert edge scrub, particularly near dense vegetation that it uses for concealing and protecting the nest. | ND   | Yes  | Moderate – Last detected within the BSA prior to 2002 (SELC 2011). Suitable habitat is present within the BSA and the species is known to winter within the region (Unitt 2004).   |
| least Bell's vireo<br><i>Vireo bellii<br/>pusillus</i>                     | USFWS:<br>Endangered<br>CDFW:<br>Endangered<br>(nesting)<br>North<br>County<br>MSCP:<br>Covered City<br>MHCP:<br>Covered | Riparian woodland with understory of dense young willows or mulefat and willow canopy. Nests often placed along internal or external edges of riparian thickets (USFWS 1986).                            | D  | Yes  | Known to Occur – Has been recorded during monthly bird counts. Suitable nesting habitat is present within the BSA (Patton 2010).   |
| gray vireo<br><i>Vireo vicinior</i>  | USFWS:<br>BCC CDFW:<br>Species of<br>Special<br>Concern<br>(nesting)   | Chaparral habitats in mountainous areas 3,000 to 5,000 feet in elevation.  | ND   | No   | Low – Historically detected within the BSA; however, last detection date is unknown (SELC 2011). Not likely to breed within the BSA due to the low elevations (Unitt 2004).  |

| <b>Common Name<br/>Scientific Name</b>                               | <b>Sensitivity<br/>Status<sup>1</sup></b>  | <b>Habitat Requirements</b>  | <b>Detected<br/>(D) or<br/>Not<br/>Detected<br/>(ND)<sup>2</sup></b> | <b>Potential<br/>to Breed<br/>within<br/>BSA</b> | <b>Probability of Occurrence</b>  |
|--|--|--|--|--|---|
| California horned lark<br><i>Eremophila alpestris actia</i>          | CDFW:<br>Watch List  | Found year-round in coastal strand, grasslands, and sandy deserts of San Diego County. Typically a disturbance regime species exploiting the open ground following plowed fields or fire in search of insects. | ND   | Yes  | Low – Last detected within the BSA prior to 2002 (MEC 2002; SELC 2011). Low-quality habitat present within the BSA.   |
| purple martin<br><i>Progne subis</i>                                 | CDFW:<br>Species of<br>Special<br>Concern<br>(nesting)   | Found throughout the United States but is rare in San Diego. Restricted to mountain region of San Diego County. Nests in isolated snags with holes.  | ND   | No   | Low – Historically detected within the BSA (SELC 2011). Individuals within the BSA are likely migrants as this species nests in the higher mountain ranges (Unitt 2004).  |
| bank swallow<br><i>Riparia riparia</i>                               | CDFW: State<br>Threatened<br>(nesting)   | Inhabits riverbanks and gravel pits where sandy, vertical bluffs are available for the birds to dig their burrows and nest in colonies. Breeding season is from March through April.                           | ND   | No   | Low – Rare migrant recorded at San Elijo in 1980, 1981, 1984 (King et al. 1987), and September 1989, July 1997, and August 1997 (Patton 2010). Only known colony extirpated from San Diego County and last reported nesting anywhere in southern California was in 1976 (Unitt 2004).                         |
| coastal cactus wren<br><i>Campylorhynchus brunneicapillus couesi</i> | USFWS:<br>BCC<br>CDFW:<br>Species of<br>Special<br>Concern<br>North<br>County<br>MSCP:<br>Covered City<br>MHCP:<br>Covered | Coastal sage scrub with extensive stands of tall prickly pear or cholla cacti ( <i>Opuntia</i> sp.).   | ND   | Yes  | Low – Last detected within the BSA in 1981 (SELC 2011). The nearest CNDDB locations are considered extirpated (CDFG 2011) and all observations nearby have been recorded only before 1997 (Unitt 2004). Breeding has not been confirmed within the BSA (Unitt 2004). Low- quality habitat present within BSA. |

| <b>Common Name<br/>Scientific Name</b>   | <b>Sensitivity<br/>Status<sup>1</sup></b>   | <b>Habitat Requirements</b>   | <b>Detected<br/>(D) or<br/>Not<br/>Detected<br/>(ND)<sup>2</sup></b> | <b>Potential<br/>to Breed<br/>within<br/>BSA</b> | <b>Probability of Occurrence</b>   |
|--|---|---|--|--|--|
| coastal California<br>gnatcatcher<br><i>Polioptila<br/>californica<br/>californica</i> | USFWS:<br>Threatened<br>CDFW:<br>Species of<br>Special<br>Concern<br>North<br>County<br>MSCP:<br>Covered City<br>MHCP:<br>Covered | Diegan coastal sage<br>scrub dominated by<br>California sagebrush<br>( <i>Artemisia californica</i> )<br>and flat-topped<br>buckwheat ( <i>Eriogonum<br/>fasciculatum</i> ) below<br>2,500 feet elevation in<br>Riverside County and<br>below 1,000 feet<br>elevation along the<br>coastal slope. Generally<br>avoids steep slopes<br>above 25% and dense,<br>tall vegetation for<br>nesting. | D  | Yes  | Known to Occur – Detected<br>during the BioBlitz (2009)<br>and monthly bird counts.<br>Nests within the BSA (Patton<br>2010).  |
| western bluebird<br><i>Sialia mexicana</i>   | City MHCP:<br>Covered   | Frequents open<br>woodlands for foraging,<br>but requires suitable<br>roosting and nesting<br>cavities usually in snags.<br>Availability of snags<br>may limit population<br>density.   | D  | Yes  | Known to Occur – Detected<br>during the BioBlitz (2009)<br>and monthly bird counts.<br>Suitable breeding and<br>foraging habitat is present<br>within the BSA.                     |
| Bendire's<br>thrasher<br><i>Toxostoma<br/>bendirei</i>                                 | USFWS:<br>BCC CDFW:<br>Species of<br>Special<br>Concern   | Local spring/summer<br>resident in flat areas of<br>desert succulent<br>shrub/Joshua tree<br>habitats in the Mojave<br>Desert (CDFG 2003).  | ND   | No   | Low – Last detected within<br>the BSA in 1964 (SELC<br>2011). No breeding habitat<br>within the BSA. This species<br>may be a rare winter or<br>migrant visitor within the<br>BSA. |
| Virginia's<br>warbler<br><i>Vermivora<br/>virginiae</i>                                | USFWS:<br>BCC<br>CDFW:<br>Watch List<br>(nesting)   | Steep-sloped, xeric,<br>piñon-juniper ( <i>Pinus<br/>edulis-Juniperus</i> spp.)<br>and oak ( <i>Quercus</i> )<br>woodland-dominated<br>habitat.   | ND   | No   | Low – Historically detected<br>within the BSA (SELC<br>2011). This species is not<br>known to breed in San Diego<br>County (Unitt 2004).   |
| yellow warbler<br><i>Dendroica<br/>petechia<br/>brewsteri</i>                          | USFWS:<br>BCC<br>CDFW:<br>Species of<br>Special<br>Concern<br>(nesting)   | A fairly common<br>summer breeding<br>resident found along<br>mature riparian<br>woodlands consisting of<br>cottonwood, willow,<br>alder, and ash trees.<br>Restricted to this<br>increasingly patchy<br>habitat.   | D  | Yes  | Known to Occur – Detected<br>during the BioBlitz (2009)<br>and monthly bird counts.<br>Suitable breeding and<br>foraging habitat is present<br>within the BSA.                     |

| <b>Common Name<br/>Scientific Name</b>   | <b>Sensitivity<br/>Status<sup>1</sup></b>  | <b>Habitat Requirements</b>  | <b>Detected<br/>(D) or<br/>Not<br/>Detected<br/>(ND)<sup>2</sup></b> | <b>Potential<br/>to Breed<br/>within<br/>BSA</b> | <b>Probability of Occurrence</b>  |
|--|--|--|--|--|---|
| yellow-breasted<br>chat<br><i>Icteria virens</i>   | CDFW:<br>Species of<br>Special<br>Concern<br>(nesting)<br>North<br>County<br>MSCP:<br>Covered                          | Riparian woodland, with<br>a dense undergrowth.  | D  | Yes  | Known to Occur – Detected<br>during the BioBlitz (2009)<br>and monthly bird counts.<br>Suitable breeding and<br>foraging habitat is present<br>within the BSA.  |
| southern<br>California rufous-<br>crowned sparrow<br><i>Aimophila<br/>ruficeps<br/>canescens</i> | CDFW:<br>Watch List<br>North<br>County<br>MSCP:<br>Covered City<br>MHCP:<br>Covered                                    | Grassy or rocky slopes<br>with open scrub at<br>elevations from sea level<br>to 2,000 feet. Occurs<br>mainly in coastal sage<br>scrub. | ND   | Yes  | Moderate – Last detected<br>within the BSA in 1987<br>(SELC 2011). Nearest<br>CNDDB location is<br>approximately 0.5 mile<br>northeast of the BSA.<br>Moderate-quality habitat<br>present within the BSA. |
| Bell's sage<br>sparrow<br><i>Amphispiza belli<br/>belli</i>                                      | USFWS:<br>BCC<br>CDFW:<br>Watch List<br>North<br>County<br>MSCP:<br>Covered City<br>MHCP:<br>Covered                   | Occurs mainly in coastal<br>sage scrub and chaparral<br>habitats.  | ND   | Yes  | Moderate – Historically<br>detected within the BSA;<br>however, the last detection<br>date is unknown (SELC<br>2011). Breeding has not been<br>confirmed within the BSA<br>(Unitt 2004).                  |
| Belding's<br>savannah sparrow<br><i>Passerculus<br/>sandwichensis<br/>beldingi</i>               | CDFW:<br>Endangered<br>City MHCP:<br>Covered   | Locally common in open<br>grassy or weedy areas<br>throughout San Diego<br>County.   | D  | Yes  | Known to Occur – Breeds<br>within the BSA (Unitt 2004).<br>Commonly detected during<br>monthly bird counts.   |
| large-billed<br>savannah sparrow<br><i>Passerculus<br/>sandwichensis<br/>rostratus</i>           | CDFW:<br>Species of<br>Special<br>Concern<br>(wintering)<br>City MHCP:<br>Covered                                      | Found along beaches<br>and shores with marsh<br>habitat.   | ND   | No   | Low – Last detected within<br>the BSA in 1991 (MEC<br>2002; SELC 2011). Does not<br>breed in San Diego County<br>(Unitt 2004).  |
| grasshopper<br>sparrow<br><i>Ammodramus<br/>savannarum<br/>perpallidus</i>                       | CDFW:<br>Species of<br>Special<br>Concern<br>(nesting)<br>North<br>County<br>MSCP:<br>Covered City<br>MHCP:<br>Covered | Arid grasslands with<br>shrubs.  | ND   | Yes  | Low – Last detected within<br>the BSA in 1996 (MEC<br>2002; SELC 2011). Low<br>potential breeding habitat<br>within the BSA.  |

| <b>Common Name<br/>Scientific Name</b>   | <b>Sensitivity<br/>Status<sup>1</sup></b>   | <b>Habitat Requirements</b>  | <b>Detected<br/>(D) or<br/>Not<br/>Detected<br/>(ND)<sup>2</sup></b> | <b>Potential<br/>to Breed<br/>within<br/>BSA</b> | <b>Probability of Occurrence</b>   |
|--|---|--|--|--|--|
| summer tanager<br><i>Piranga rubra</i>   | CDFW:<br>Species of<br>Special<br>Concern<br>(nesting)  | Inhabits the Mojave<br>Desert and riparian<br>woodlands that contain<br>dense cotton wood<br>canopy. Winters in the<br>coastal lowlands.   | ND   | No   | Low – Historically detected<br>within the BSA (SELC<br>2011). Known to winter<br>within the BSA (Unitt 2004).  |
| tricolored<br>blackbird<br><i>Agelaius tricolor</i>                              | USFWS:<br>BCC<br>CDFW:<br>Species of<br>Special<br>Concern<br>(nesting)<br>North<br>County<br>MSCP:<br>Covered<br>City MHCP:<br>Covered | Freshwater marshes with<br>cattails and other<br>emergent vegetation.,   | ND   | No   | Moderate – Last detected<br>within the BSA prior to 2002<br>(MEC 2002; SELC 2011).<br>No nesting colonies are<br>known within the BSA (Unitt<br>2004).   |
| yellow-headed<br>blackbird<br><i>Xanthocephalus<br/>xanthocephalus</i>           | CDFW:<br>Species of<br>Special<br>Concern<br>(nesting)<br>City MHCP:<br>Covered   | Freshwater marshes with<br>cattails and other<br>emergent vegetation.<br>Nests in deeply flooded<br>freshwater marshes.  | ND   | No   | Moderate – Last detected<br>within the BSA prior to 2002<br>(MEC 2002; SELC 2011).<br>Only one known nesting<br>colony in San Diego County<br>at Tule Lake (Unitt 2004).<br>This species is a migrant or<br>winter visitor to the BSA. |
| <b>Mammals</b>   |   |  |  |  |  |
| Mexican long-<br>tongued bat<br><i>Choeronycteris<br/>mexicana</i>               | CDFW:<br>Species of<br>Special<br>Concern   | In San Diego County,<br>occurs primarily in<br>urban areas. In Arizona<br>and Mexico, found in<br>deep canyons and in the<br>mountains, foraging in<br>riparian, desert scrub,<br>and pinyon-juniper<br>habitats, in particular on<br><i>Yucca</i> sp. | ND   | Yes  | Moderate – Suitable breeding<br>and foraging habitat for this<br>species is present within the<br>BSA.   |
| California<br>(western) mastiff<br>bat<br><i>Eumops perotis<br/>californicus</i> | CDFW:<br>Species of<br>Special<br>Concern<br>City MHCP:<br>Covered  | Chaparral, live oaks, and<br>arid, rocky regions.<br>Requires downward-<br>opening crevices.   | D  | Yes  | High – Detected during the<br>BioBlitz (2009).   |
| pocketed free-<br>tailed bat<br><i>Nyctinomops<br/>femorosaccus</i>              | CDFW:<br>Species of<br>Special<br>Concern   | Rugged cliffs, rocky<br>outcrops, and slopes in<br>desert shrub and pine<br>oak forests.   | ND   | Yes  | Moderate – Nearest CNDDDB<br>record is from 1988 within<br>urban habitat a mile north of<br>the BSA (CDFG 2011).   |

| <b>Common Name<br/>Scientific Name</b>  | <b>Sensitivity<br/>Status<sup>1</sup></b>   | <b>Habitat Requirements</b>  | <b>Detected<br/>(D) or<br/>Not<br/>Detected<br/>(ND)<sup>2</sup></b> | <b>Potential<br/>to Breed<br/>within<br/>BSA</b> | <b>Probability of Occurrence</b>   |
|---|---|--|--|--|--|
| pallid bat<br><i>Antrozous pallidus</i>   | CDFW:<br>Species of<br>Special<br>Concern<br>North<br>County<br>MSCP:<br>Covered                          | Deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect them from high temperatures.               | ND   | Yes  | Moderate – Suitable breeding and foraging habitat exists within the BSA in uplands.  |
| Townsend's (western) big-eared bat<br><i>Corynorhinus townsendii pallescens</i> | CDFW:<br>Species of<br>Special<br>Concern<br>North<br>County<br>MSCP:<br>Covered<br>City MHCP:<br>Covered | Coastal conifer and broad-leaf forests, oak and conifer woodlands, arid grasslands and deserts. Most common in mesic sites with caves or other roost cavities.                           | ND   | No   | Moderate – Habitat for roosting is marginal. Has not been observed within the BSA.   |
| western red bat<br><i>Lasiurus blossevillei</i>                                 | CDFW:<br>Species of<br>Special<br>Concern   | Feeds over grasslands, shrublands, open woodlands, forests, and croplands. Roosts primarily in trees and sometimes shrubs, often in edge habitats along streams, fields, or urban areas. | D  | Yes  | High – Detected during the BioBlitz (2009).  |
| San Diego black-tailed jackrabbit<br><i>Lepus californicus bennettii</i>        | CDFW:<br>Species of<br>Special<br>Concern   | Typical habitats include early stages of chaparral, open coastal sage scrub, and grasslands near the edges of brush.   | ND   | Yes  | Moderate – Historically recorded within BSA as recent as 1990 (MEC 2002).  |
| Dulzura California pocket mouse<br><i>Chaetodipus californicus femoralis</i>    | CDFW:<br>Species of<br>Special<br>Concern   | Slopes covered with chaparral and live oaks.   | ND   | Yes  | Low – Although suitable habitat for this species occurs in limited quantities in the BSA. The species has a very limited distribution and little is known about its range within the BSA.  |
| northwestern San Diego pocket mouse<br><i>Chaetodipus fallax fallax</i>         | CDFW:<br>Species of<br>Special<br>Concern   | Inhabits coastal sage scrub, sage scrub/grassland ecotones, and chaparral communities.   | ND   | Yes  | High – Historically recorded within BSA as recent as 1990 (MEC 2002). A CNDDB location from 2002 is recorded in the northern portion of the Central Basin. Suitable habitat is present within coastal sage scrub and grassland habitat of the BSA. |

| <b>Common Name<br/>Scientific Name</b>                                       | <b>Sensitivity<br/>Status<sup>1</sup></b>  | <b>Habitat Requirements</b>   | <b>Detected<br/>(D) or<br/>Not<br/>Detected<br/>(ND)<sup>2</sup></b> | <b>Potential<br/>to Breed<br/>within<br/>BSA</b> | <b>Probability of Occurrence</b>  |
|--|--|---|--|--|---|
| southern<br>grasshopper<br>mouse<br><i>Onychomys<br/>torridus Ramona</i>     | CDFW:<br>Species of<br>Special<br>Concern  | This species inhabits a variety of low, open and semi-open scrub habitats, including coastal sage scrub, mixed chaparral, low sagebrush, riparian scrub, and annual grassland with scattered shrubs.  | ND   | Yes  | Low – Historically recorded within BSA (MEC 2002); however, this record is from 1979.   |
| Pacific pocket<br>mouse<br><i>Perognathus<br/>longimembris<br/>pacificus</i> | USFWS:<br>Endangered<br>CDFW:<br>Species of<br>Special<br>Concern<br>City MHCP:<br>Covered               | Plant communities suitable for the Pacific pocket mouse consist of shrublands with firm, fine-grain, sandy substrates in the immediate vicinity of the ocean. These communities include coastal strand, coastal dunes, river alluvium, and coastal sage scrub growing on marine terraces. | ND   | Yes  | Moderate – Potentially suitable breeding and foraging habit is present within the BSA (Figure 2-3). The nearest CNDDDB record is from 2002 approximately 0.5 mile northeast of the BSA.                       |
| San Diego desert<br>woodrat<br><i>Neotoma lepida<br/>intermedia</i>          | CDFW:<br>Species of<br>Special<br>Concern  | Common to abundant in Joshua tree, piñon-juniper, mixed and chamise-redshank chaparral, sagebrush, and most desert habitats.  | ND   | Yes  | Moderate – Suitable breeding and foraging habitat occurs within the coastal sage scrub and chaparral habitat within the BSA.  |
| American badger<br><i>Taxidea taxus</i>                                      | CDFW:<br>Species of<br>Special<br>Concern<br>North<br>County<br>MSCP:<br>Covered                         | Coastal sage scrub, mixed chaparral, grassland, oak woodland, chamise chaparral, mixed conifer, pinyon-juniper, desert scrub, desert wash, montane meadow, open areas, and sandy soils.   | ND   | Yes  | High – Suitable breeding and foraging habitat occurs within the BSA.  |
| mountain lion<br><i>Felis concolor</i>                                       | CDFW:<br>Legally<br>protected<br>species<br>North<br>County<br>MSCP:<br>Covered<br>City MHCP:<br>Covered | Rugged mountains, forests, deserts, and swamps.   | ND   | Yes  | Moderate – Suitable breeding and foraging habitat for this species occurs throughout riparian and upland portions of the BSA. This species is susceptible to fragmentation and edge effects from development. |



| <b>Common Name<br/>Scientific Name</b>                      | <b>Sensitivity<br/>Status<sup>1</sup></b>         | <b>Habitat Requirements</b>   | <b>Detected<br/>(D) or<br/>Not<br/>Detected<br/>(ND)<sup>2</sup></b> | <b>Potential<br/>to Breed<br/>within<br/>BSA</b> | <b>Probability of Occurrence</b>  |
|---|---|---|--|--|---|
| southern mule deer<br><i>Odocoileus hemionus fuliginata</i> | CDFW:<br>Harvest species<br>City MHCP:<br>Covered | Coniferous forests, desert scrub, chaparral, and grassland with shrubs.   | D  | Yes  | High – Detected during the BioBlitz (2009).   |
| Harbor seals<br>( <i>Phoca vitulina</i> )                   | MMPA  | Permanent residents in the waters off of the San Diego coastline feeding on a variety of fish. Will forage on fish in shallow waters.                   | ND   | No   | Moderate potential to occur within the BSA. This species has the potential to occur at the mouth of the lagoon and in the west and central basin during higher tides to forage. |
| California sea lions ( <i>Zalophus californianus</i> )      | MMPA  | Occurs along the entire California coast, and occurs year-round in the waters off the San Diego coast. Will forage on schooling fish in shallow waters. | ND   | No   | Moderate potential to occur within the BSA. This species has the potential to occur at the mouth of the lagoon and in the west and central basin during higher tides to forage. |

**<sup>1</sup>Sensitivity Status Key**

Federal U.S. Fish and Wildlife Service (USFWS); BCC = Birds of Conservation Concern

State California Department of Fish and Wildlife (CDFW)

City: Covered Draft City of Encinitas Subarea Plan Proposed Covered Species

Coverage for the species within the Encinitas Subarea may be contingent on other MHCP cities that control major/critical locations or the majority of the species or its habitat. If no city is listed as a contingency, then the species will be covered within the Encinitas Subarea when Encinitas meets all Section 10(a), Natural Community Conservation Plan, and MHCP criteria within its boundaries.

North County MSCP: Covered Draft North County MSCP Proposed Covered Species

MMPA: Protected under Marine Mammal Protection Act

**<sup>2</sup>Findings:**

Species detected or not during studies outlined in Section 2.2.4, Table 2-3. Other previous detections are noted for reference, typically prior to 2001.

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### 3.4.2.1 Federally Listed Species

Of the 94 special-status species with potential to occur within the BSA, six species are listed as federally threatened or endangered, were detected on-site during previous studies, and are considered resident/breeding within the BSA:

- light-footed clapper rail,
- western snowy plover,
- California least tern,
- southwestern willow flycatcher,
- least Bell's vireo, and
- coastal California gnatcatcher.

These species are discussed in detail below.

#### Light-Footed Clapper Rail

The light-footed clapper rail is federally and state listed as endangered. It was listed as endangered on October 13, 1970 (Federal Register 35 FR 16047). This listing status applies to the entire U.S. population of the species. The state listed the subspecies as endangered on June 27, 1971. USFWS has not designated critical habitat for this species.

The species is restricted to coastal salt marshes in southern California where vegetation is dominated by cordgrass (*Spartina foliosa*) and pickleweed (*Salicornia* sp.). It can also be found in brackish and freshwater marshes with cattails and bulrushes. In fresh/brackish water, clapper rails build nests in dense cattail or bulrush. Clapper rails forage in higher marsh vegetation and along tidal creeks and at the interface between vegetation and adjacent mudflats. Light-footed clapper rail is a reclusive species and will nest and utilize relatively small patches of its preferred habitat when isolated from external anthropogenic disturbances (Zemba 2011, Zemba and Hoffman 2012).

Breeding pairs of the light-footed clapper rail have been found at 22 marshes throughout its range since 1980. More recently, however, this number has declined, with clapper rails found in only 11 marshes in 1991. In 1990, the U.S. population of light-footed clapper rails was estimated at 190 pairs (USFWS 1985). The light-footed clapper rail ranges in disjunct populations from Santa Barbara County to San Diego County and into Baja California, Mexico. Light-footed clapper rails are uncommon, localized residents, and number around 100 pairs in San Diego County (Unitt 2004). The largest population in San Diego County is found in the Tijuana National Wildlife Refuge (Unitt 2004).

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### *Habitat within the BSA*

Within the BSA, the light-footed clapper rail is a year-round resident at San Elijo Lagoon and can be heard calling in the evening, although it is rarely seen. Total number of breeding pairs in the lagoon has ranged from six to 31 over the past 5 years, with 15 breeding pairs recorded in 2010 and 2011 (Zemba et al. 2011), 31 pairs detected in 2012, and 20 pairs recorded in 2013 (Zemba et al. 2013). Breeding territories are usually focused in brackish marsh adjacent to saltmarsh, flats, and channels in the Central Basin north of the end of North Rios Avenue and adjacent to the Nature Center, and in the East Basin between the flood control dike and I-5, east of the south end of the dike, north of Santa Carina Street, and along Escondido Creek west of the power lines.

Surveys were conducted in appropriate breeding habitat. Light-footed clapper rails were detected mostly by listening for the call of the rail. In some instances, a playback of a taped “duet” call was played to elicit responses. Ten of the vocalizing rails detected in 2011 were in freshwater marsh growth along the lagoon edges and Escondido Creek and five were in salt marsh habitat. In 2013, two pairs were detected in the west and central basins, while the remaining 18 pairs were detected in the eastern basin within the brackish marsh. Further counts detected light-footed clapper rails in 16 locations throughout the BSA (Figure 3-3).

### Western Snowy Plover

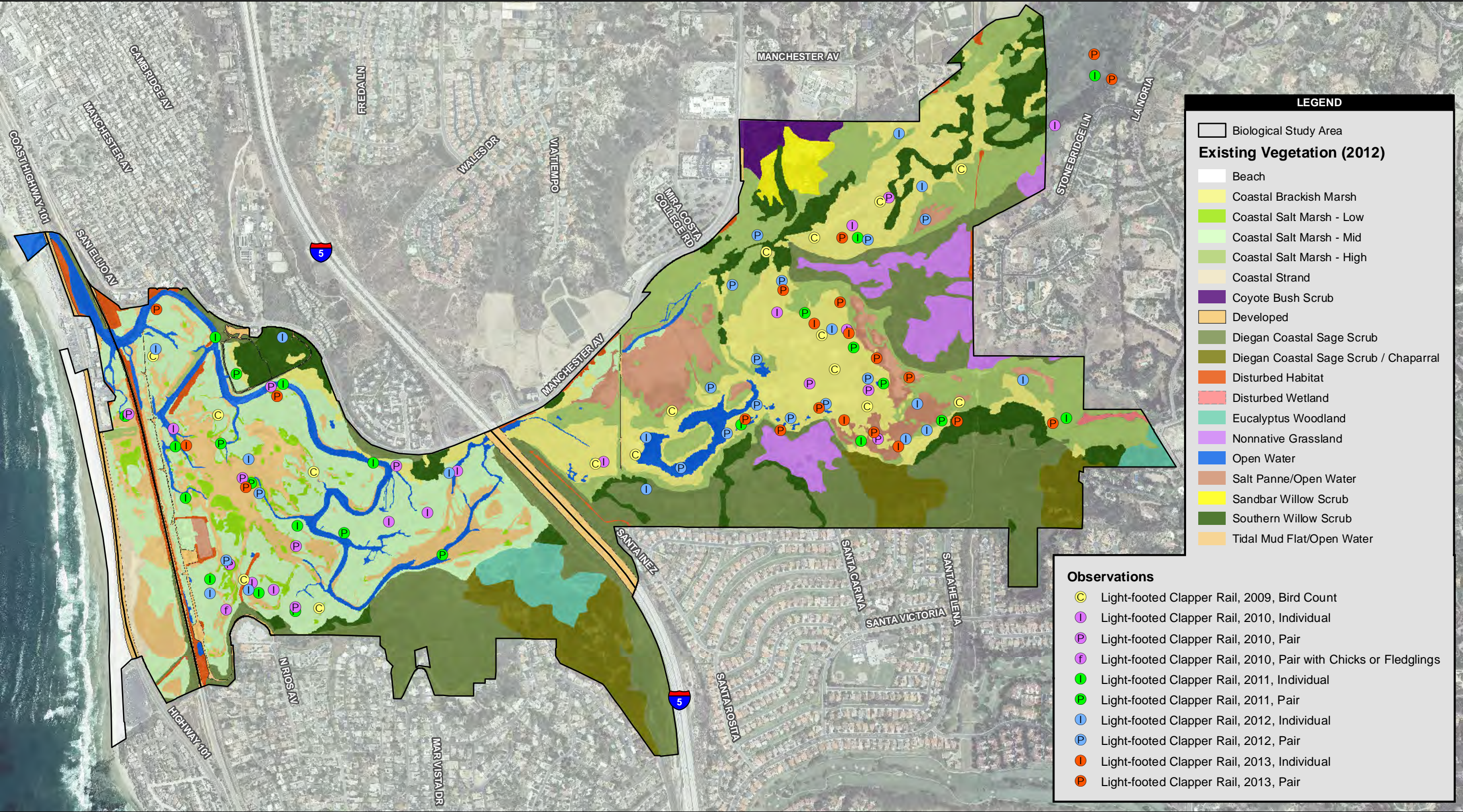
The western snowy plover is listed as federally threatened and a species of special concern by the state. The western snowy plover was listed by USFWS on March 5, 1993 (Federal Register 58 FR 12874). A recovery plan has been adopted for this species (USFWS 2007). Critical habitat was designated on September 29, 2005 (USFWS 2005)

Western snowy plover occurs along the Pacific coast from southern Washington to Baja California. It is a common winter migrant, winter visitor, and a declining and local resident in San Diego County. It nests on undisturbed, flat areas with loose substrate, such as sandy beaches and dried mudflats along the California coast. Western snowy plovers forage primarily on the wet sand at the beach-surf interface, where they feed on small crustaceans, marine worms, insects, and amphipods. Nesting occurs between April 1 and September 15. The species is declining because of increased human disturbance, loss of feeding and nesting areas, and increased predation by birds and mammals. Few undisturbed beach areas remain in San Diego County.

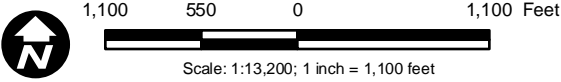
### *Habitat within the BSA*

Within the BSA, western snowy plovers are regularly spotted foraging within mudflats. Up to 76 western snowy plover individuals were recorded within the lagoon and adjacent beach area on





Source: SANDAG 2012; Zembal 2011, 2012; AECOM 2014



**Figure 3-3**  
**Light-footed Clapper Rail Observations**



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September 29, 2011 (Patton 2012b). Historically, plovers were recorded nesting within the BSA on the East Basin islands and East Basin dike. Post-breeding and wintering roosting flocks have been documented at Cardiff State Beach, which is adjacent to the BSA. Roost sites have varied but have included both sides of the mouth of the lagoon. No breeding has been recorded within the lagoon since 2002 (Patton 2010).

### California Least Tern

The California least tern is federally and state listed as endangered. The California least tern was listed by USFWS on October 13, 1970 (Federal Register 35 FR 16047). This listing status applies to the entire population of *S. a. browni*. Critical habitat has not been determined by USFWS, although there is an approved recovery plan for the species. The state listed the subspecies as endangered on June 27, 1971.

The species breeds from San Francisco Bay south to Baja California. In San Diego County, it is a fairly common summer resident from early April to the end of September (Unitt 2004). Significant nesting sites in the county include Mission Bay, Aliso Creek, Batiquitos Lagoon, Tijuana River mouth, Chula Vista, North Island Naval Air Station, San Elijo Lagoon, and Lindbergh Field. Wintering areas are thought to be along the Pacific coast of South America. The species historically nested colonially on beaches that are undisturbed, sparsely vegetated, flat areas with loose, sandy substrate. Few beach nesting areas remain and least terns are now found in varied habitats ranging from mudflats to airports. Adults roost primarily on the ground. They typically forage in areas with water less than 60 feet in depth and within 2 miles of roosting sites, although they are considered opportunistic and often shift their behavior in response to local prey patterns (Atwood and Minsky 1983). This small migratory tern begins nesting in mid-May and is present at nesting colonies from April through August. The species nests in loose colonies in areas relatively free of human or predatory disturbance. Nests are on barren to sparsely vegetated sites near water, usually with a sandy or gravelly substrate.

Much of the least tern's habitat has been lost because of human development and disturbance, and there are likely to be few opportunities to create or restore habitat to increase the number of nesting sites (USFWS 2006). Subsequent management of nesting sites, including fencing and predator control at nesting colonies, contributed to an increase in the population in California to approximately 7,100 pairs in 2005 (USFWS 2006a). In San Diego County, the least tern population has increased from approximately 500 pairs in the 1970s to 2,100–2,800 pairs in 1997–2002 and nearly 4,000 pairs in 2003 (Unitt 2004).

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### *Habitat within the BSA*

Within the BSA, the least tern is a common migrant and has been observed foraging. Records indicate that this species historically had a breeding population within the BSA. They have nested in colonies on saltpan, patches of sand on alluvial fans and channel edges, and on the two islands in the East Basin north of Santa Carina Street that were constructed by State Fish and Wildlife and County Public Works in 1981. Changes in flood patterns and habitat quality may have had a negative effect on the breeding success within the BSA. No breeding has been documented since 2002 (Patton 2010).

Least terns were observed in very limited numbers and only relatively late in the season in 2011. Two to three were reported on June 12 and five to seven on July 11 foraging throughout the lagoon and nearshore waters and roosting on mudflats in the lagoon. One fledgling was observed along the beach on July 22 and two adults on August 8. No nests were documented in 2011 and no on-ground tern activity was observed on the saltpan east of the east basin dike or in other potential nesting areas (Wolf 2010, 2011).

### Southwestern Willow Flycatcher

The southwestern willow flycatcher, a subspecies of willow flycatcher (*Empidonax traillii*), is a federally endangered species (USFWS 1995). The southwestern willow flycatcher was federally listed as endangered in 1995 and state listed as endangered in 1990. Federally designated critical habitat exists for the subspecies. A recovery plan has been adopted for the southwestern willow flycatcher.

The southwestern willow flycatcher is a summer breeding resident in riparian habitats in southern California, southern Nevada, southern Utah, Arizona, New Mexico, western Texas, southwestern Colorado, and northwestern Mexico (USFWS 1995). In San Diego County, only two substantial breeding populations are known to remain along the Santa Margarita River and the upper San Luis Rey River. The southwestern willow flycatcher is restricted to dense riparian woodlands of willow, cottonwood, and other deciduous shrubs and trees. In general, the riparian habitat of this species tends to be rare, isolated, small, and/or in linear patches, separated by vast expanses of arid lands. Egg laying by the endangered southwestern willow flycatcher occurs in San Diego County from the end of May through the end of June.

### *Habitat within the BSA*

Within the BSA, this species was observed in the riparian habitat near the nature center in the northwestern Central Basin in May and June of 2002, two in the same area on May 30, 2004, and



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one individual on June 3, 2007. An individual was also observed along a trail west of El Camino Real on June 11, 2007 (Patton 2010) and one individual was reported along the La Orilla Trail west of El Camino Real on May 15, 2010 (Patton 2012a).

### Least Bell's Vireo

The least Bell's vireo was federally listed as endangered in 1986 and state listed as endangered in 1980. Federally designated critical habitat exists for the species. The least Bell's vireo is the westernmost subspecies of the Bell's vireo and breeds entirely within southern California and Baja, California.

The least Bell's vireo breeding season extends from March through September. During the breeding season, the least Bell's vireo is restricted to riparian woodland and riparian scrub. In San Diego County, it occurs mainly in the coastal lowlands, rarely up to 3,000 feet elevation. Territory size ranges from 0.5 to 7.5 acre and there is evidence of high site fidelity among adults (Kus 2002). Early to mid-successional riparian habitat is typically used for nesting by this vireo because this habitat supports the dense shrub cover required for nest concealment as well as a structurally diverse canopy for foraging (Kus 2002).

### *Habitat within the BSA*

Within the BSA, this species has been recorded within southern willow scrub habitat. Observations of this species within willow scrub near the nature center were documented in 2007 (Patton 2010). In addition, breeding pairs were detected upstream of the La Bajada bridge in 2009 (Bache 2009). In 2011, breeding pairs were recorded adjacent to Escondido Creek and Lux Canyon Drainage (Patton 2011, 2012a).

### Coastal California Gnatcatcher

The coastal California gnatcatcher was listed as federally threatened in 1993 and is a state species of special concern. Federally designated critical habitat exists for the species. Coastal California gnatcatcher is declining proportionately with the continued loss of coastal sage scrub habitat in the six southern California counties (San Bernardino, Ventura, Los Angeles, Orange, San Diego, and Riverside) located within the coastal plain.

Habitat preferences in San Diego County consist of Diegan coastal sage scrub dominated by California sagebrush and flat-topped buckwheat, which are the primary plants used by coastal California gnatcatchers when foraging for insects (RECON 1987; ERCE 1990). The species inhabits coastal sage scrub vegetation below 2,500 feet elevation in Riverside County and

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generally below 1,000 feet elevation along the coastal slope in San Diego County; it generally avoids steep slopes above 25 percent and dense, tall vegetation for nesting.

#### *Habitat within the BSA*

The coastal California gnatcatcher is known to occur within the coastal sage scrub located on the slopes of the BSA. In 2009, gnatcatchers were recorded from 23 locations from within the BSA (Patton 2010). In 2010, gnatcatchers were recorded from 35 locations in the central and east basins (Patton 2012a). In 2011, gnatcatchers were recorded from 35 locations in all three basins (Patton 2012a) (Figure 3-4).

#### **3.4.2.2 State-Listed Species**

Of the 94 special-status species with potential to occur within the BSA, five species were listed as state threatened or endangered; were detected during previous studies; and are considered resident/breeding within the BSA:

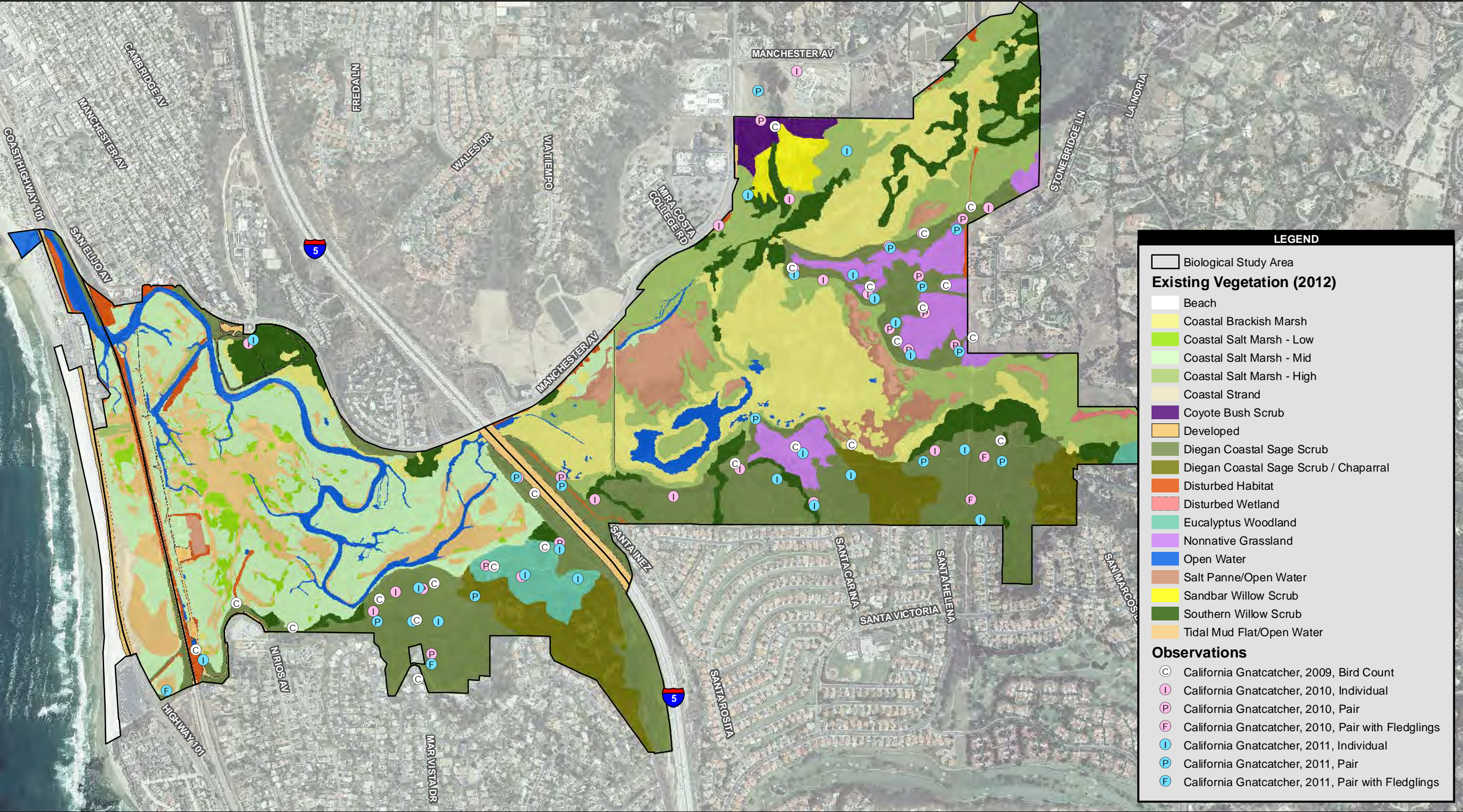
- California least tern,
- least Bell's vireo,
- light-footed clapper rail,
- southwestern willow flycatcher, and
- Belding's savannah sparrow (*Passerculus sandwichensis beldingi*).

The California least tern, least Bell's vireo, light-footed clapper rail, and southwestern willow flycatcher are also federally listed and were discussed above. The Belding's savannah sparrow is discussed in detail below.

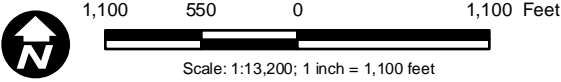
#### Belding's Savannah Sparrow

Belding's savannah sparrow is a state-listed endangered species. Belding's savannah sparrow is a resident from Santa Barbara County to northern Baja California. In San Diego County, populations are known from the Tijuana estuary, San Diego Bay, Mission Bay, San Dieguito Lagoon, Peñasquitos Lagoon, San Elijo Lagoon, Batiquitos Lagoon, Agua Hedionda Lagoon, Santa Margarita River mouth, and Aliso Creek mouth (Unitt 2004). Its preferred habitat is the edge of pickleweed-dominated coastal salt marsh associations. Breeding occurs mostly in dense, moist grasslands, wet meadows, and salicornia wetlands, with or without scattered shrubs or clumps of tall herbs. In winter, the species occupies moist and dry grasslands but prefers dense, short ground cover. It also occurs in low vegetation in croplands, and along beaches and





Source: SANDAG 2012; Patton 2010, 2012; AECOM 2014



**Figure 3-4**  
**California Gnatcatcher Observations**



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shorelines. The primary threat to the species is the massive loss of coastal salt marsh habitat that has occurred in recent years.

#### *Habitat within the BSA*

Within the BSA, the Belding's savannah sparrow is a common resident within the pickleweed marsh. Surveys were conducted within San Elijo Lagoon from 1973 through 2009. Surveys in 2009 by Robert Patton documented all observations of the sparrow within the lagoon with mapped locations and annotations of the behavior including, but not limited to, pairing, singing, posting/perching, chasing, foraging, and flying. Pairs included those observed nest building and feeding young. Many birds were observed demonstrating multiple behaviors, but final tallies were based on the behavior most indicative of territoriality. For example, if a bird was observed flying, then posting, and then singing, it was categorized as singing. All individuals observed involved in chases were seen to eventually pair, post, or sing, so chase does not appear as a category in the final tally. Birds observed in flight or foraging were not included in pair estimates since they likely were mates of those observed displaying territorial behaviors. Surveys in 2009 indicated that 136 pairs occurred within the BSA (Patton 2010). No species-specific surveys were conducted for Belding's savannah sparrow during 2010 and 2011. During 2010 and 2011 monthly bird counts, this species was observed in several locations in all three basins (Patton 2012) (Figure 3-5).

#### **3.4.2.3 Nonlisted Special-Status Species**

In addition to the federally listed and state-listed species discussed above, 13 nonlisted special-status wildlife species were detected during previous studies and are considered resident/breeding within the BSA. Nonlisted special-status species with potential to occur in the BSA, but not detected during historic surveys, are reviewed in Table 3-5 and are not addressed further in the text. Nonlisted special-status species detected in the BSA, but where the BSA does not contain suitable breeding habitat, are reviewed in Table 3-5 and not addressed further in the text.

Nonlisted special-status wildlife species detected during previous studies and considered resident/breeding within the BSA include wandering (salt marsh) skipper (*Panoquina errans*), orange-throated whiptail (*Aspidoscelis hyperythra beldingi*), silvery legless lizard (*Anniella pulchra pulchra*), Cooper's hawk (*Accipiter cooperi*), northern harrier (*Circus cyaneus*), osprey (*Pandion haliaetus*), western bluebird (*Sialia Mexicana*), white-tailed kite (*Elanus leucurus majusculus*), yellow warbler (*Dendroica petechia brewsteri*), yellow-breasted chat (*Icteria virens*), California (western) mastiff bat (*Eumops perotis californicus*), western red bat (*Lasiurus*

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*blossevillii*), and southern mule deer (*Odocoileus hemionus fuliginata*). These species are discussed below.

## **Invertebrates**

### Wandering (Salt Marsh) Skipper

The salt marsh skipper is distributed along the coast from near the mouth of the Santa Clara River to San Diego County (Emmel and Emmel 1973). It is restricted to estuarine and tideland habitats where adults are often associated with saltgrass. Adults are dull brown in color with a wingspan of about an inch. Emergence appears to occur from July through September but it is uncertain whether there is an earlier brood. Larvae utilize salt grass as a food plant but females reportedly will deposit their eggs on other grass species and the larvae will occasionally feed on other thin-bladed grasses such as cordgrass and Bermuda grass (Busnardo et al. 1989; Emmel and Emmel 1973). Native nectar sources include deerweed (*Lotus scoparius*), salty susan (*Jaumea carnosa*), and frankenia (*Frankenia* spp.). Adults have been observed using introduced species such as heliotrope (*Heliotropium curvassavicum*), sea rocket (*Cakile maritima*), sea-fig (*Carpobrotus* sp.), and chrysanthemum (*Chrysanthemum coronarium*) as nectar sources at the Tijuana Estuary (Busnardo 1989).

#### *Habitat within the BSA*

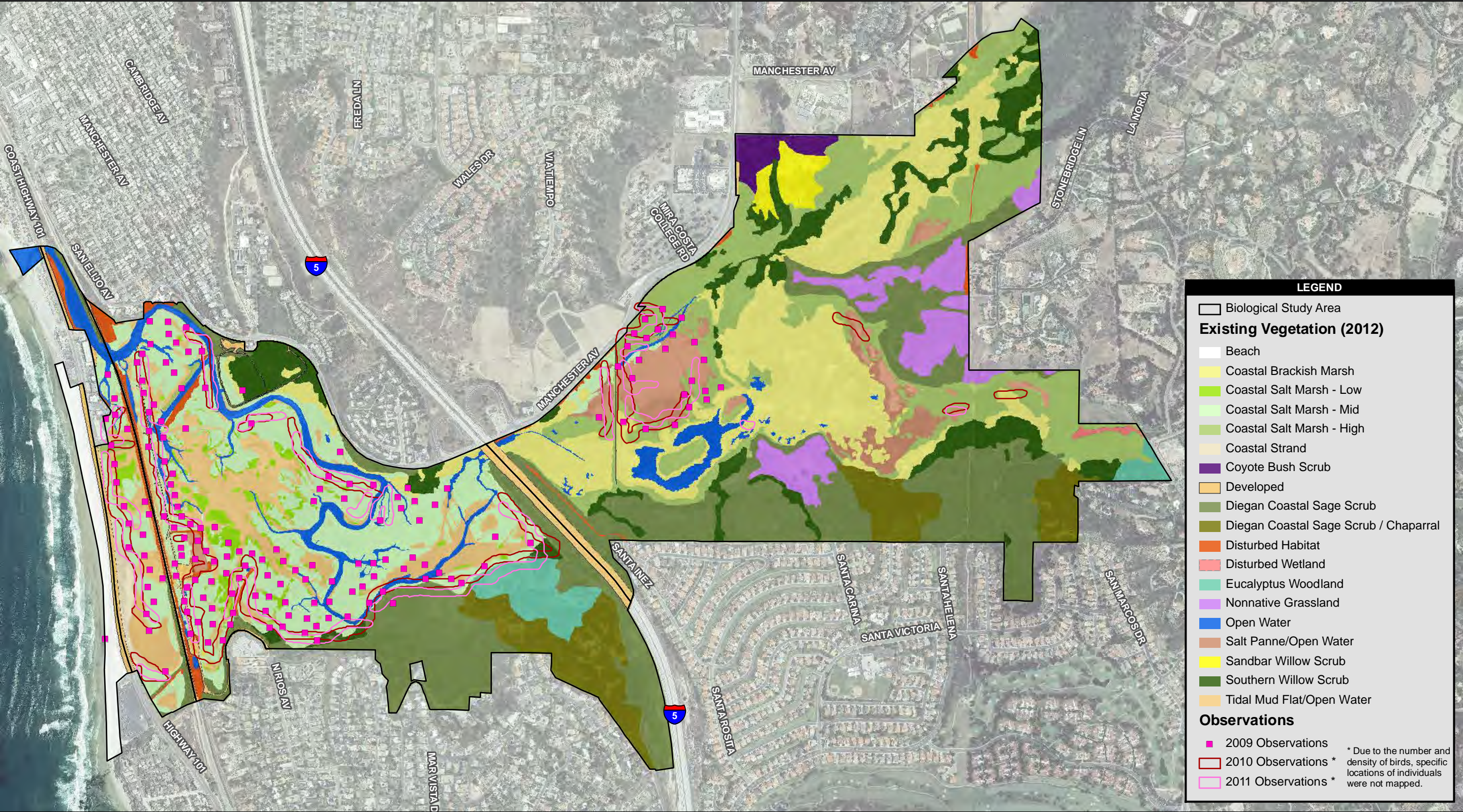
This species was detected during surveys in July and August 2010. Thirteen individuals were detected across the West, Central, and East Basins during the July surveys and 57 individuals were detected in the Central Basin during the August surveys (Figure 3-6). Suitable breeding and foraging habitat is present throughout the BSA.

## **Reptiles and Amphibians**

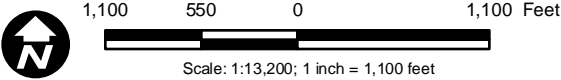
### Orange-Throated Whiptail

The orange-throated whiptail is a state species of special concern. In California, this subspecies is found on the west side of the Peninsular Ranges between sea level and 3,000 feet, in the southernmost counties (CDFG 1988). Orange-throated whiptails inhabit washes, streams, terraces, and other sandy areas associated with some perennial plants and open scrub. The principal threat to this species is loss of open sage scrub. Development of floodplains and stream terraces has also greatly contributed to this species' decline, as well as habitat fragmentation.





Source: SANDAG 2012; Patton 2010, 2011, 2012; AECOM 2014



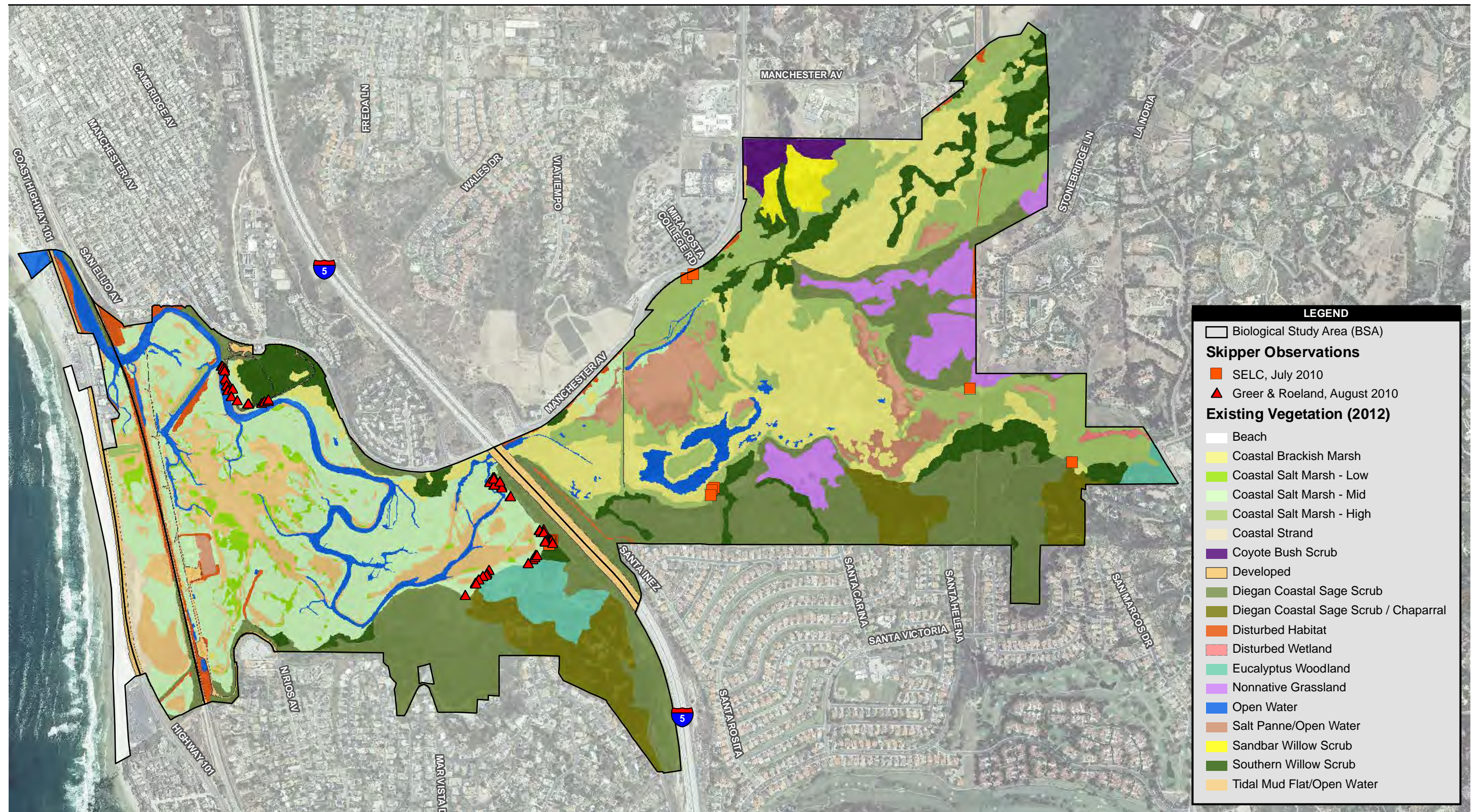
**Figure 3-5**  
**Belding's Savannah Sparrow Observations**



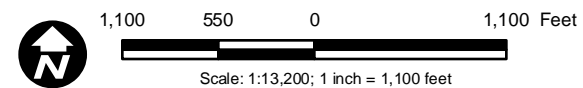
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Source: SANDAG 2012; Patton 2010, 2011, 2012; AECOM 2014



**Figure 3-6**  
**Wandering (Salt Marsh) Skipper Observations**



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### *Habitat within the BSA*

The orange-throated whiptail was detected during the BioBlitz in 2009. This species likely inhabits much of the open scrub habitat in the BSA.

### Silvery Legless Lizard

The silvery legless lizard is a state species of special concern. This species has a spotty distribution along the Coast Ranges, Transverse Mountains, and Peninsular Ranges, and along the coast of southern California (NatureServe 2012).

Habitat requirements include loose soil for burrowing (sand, loam, or leaf mold), moisture, warmth, and plant cover. This species is found where suitable soils occur in a number of vegetation communities, including sparse vegetation of coastal dunes; chaparral; pine-oak woodland; and streamside growth of sycamores, cottonwoods, or oaks.

### *Habitat within the BSA*

The silvery legless lizard was detected during the BioBlitz in 2009. This species likely inhabits much of the riparian habitat in the BSA.

## **Birds**

### Yellow Warbler

The yellow warbler (*brewsteri* subspecies) is a state species of special concern. The yellow warblers nesting in San Diego County and most migrants are *D. p. morcomi* (Unitt 2004). However, per the American Ornithologists' Union (AOU), *D. p. brewsteri* (Grinnell 1903) is considered not separable from *D. p. morcomi* (Bent 1953); therefore, they have been addressed as sensitive herein.

The yellow warbler breeds from northern Alaska and Canada southward to the middle United States and in the western United States southward into Mexico. This warbler winters in Mexico, and Central and South America. Nest building may occur as early as April in San Diego County, with fledglings reaching independence by August (Unitt 2004). This species occurs most commonly in riparian woodlands dominated by willows. The yellow warbler is frequently parasitized by the brown-headed cowbird (*Molothrus ater*).

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### *Habitat within the BSA*

The yellow warbler was documented within the BSA during the 2009 BioBlitz and during the monthly bird counts. The yellow warbler is primarily associated with southern willow scrub habitat. This species, however, can also be found foraging in other habitats within the BSA, such as eucalyptus woodland, during migration and post-breeding dispersal.

### Yellow-breasted Chat

The yellow-breasted chat is a state species of special concern. This species breeds across the central and eastern United States and southern Canada from South Dakota to New Hampshire and southward to eastern Texas and northern Florida. It also occurs in scattered regions across the western United States from southern Canada to very northern Mexico. In San Diego County, nest building typically occurs in May and fledging is completed by August (Unitt 2004). In California, chats require dense riparian thickets associated with watercourses, saturated soils, or standing water (lakes or ponds). They typically occur in riparian woodland/scrub with dense undergrowth. In San Diego County, this species occurs in the coastal lowlands and is strongly concentrated in the northwest portion of the county (i.e., Santa Margarita River and San Luis Rey River) (Unitt 2004). Comparable to other breeding riparian passerines addressed herein, the chat is frequently parasitized by the brown-headed cowbird.

### *Habitat within the BSA*

The yellow-breasted chat was documented within the BSA during the 2009 BioBlitz and during the monthly bird counts. The yellow-breasted chat is primarily associated with southern willow scrub habitat.

### White-tailed Kite

The white-tailed kite is a fully protected species by CDFW. White-tailed kites are resident in southern Texas and California; at scattered locations in Washington, Oregon, and Florida; and from Mexico to South America. In southern California, kites are widespread except in the Anza-Borrego Desert (Unitt 2004). While this species is commonly observed hunting within savanna, open woodlands, marshes, grasslands, and agricultural fields, they are known to almost exclusively nest in association with watercourses. Nests are typically placed in the crowns of oaks or other densely foliated trees. In San Diego County, the nesting season lasts from February through fledging in June (Unitt 2004).

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### *Habitat within the BSA*

The white-tailed kite utilizes the entire BSA and was documented within the BSA during the 2009 BioBlitz and during the monthly bird counts. Suitable foraging and breeding habitat occurs throughout the BSA.

### Cooper's Hawk

The Cooper's hawk is a designated animal on the CDFW Watch List. The species is a breeding resident throughout most of the wooded portion of California. In San Diego County, the Cooper's hawk occurs as a year-long resident and a winter migrant. Cooper's hawks nest primarily in oak woodlands but occasionally in willows or eucalyptus. The species prefers dense stands of live oak, riparian deciduous, or other forest habitat near water. The species usually nests and forages near open water or riparian vegetation. The Cooper's hawk will catch small birds, especially young during nesting season, and small mammals. They will also forage on reptiles and amphibians.

### *Habitat within the BSA*

Cooper's hawk is typically found in wooded areas throughout the BSA and was documented within the BSA during the 2009 BioBlitz and during the monthly bird counts. Favored nested habitats of this species within the BSA include southern willow scrub and eucalyptus woodland.

### Osprey

The osprey is a designated animal on the CDFW Watch List. Ospreys breed throughout California around large bodies of water but are more common in northern California and along the coast. The species is an uncommon year-round resident and more common winter migrant in San Diego County. Known nesting or wintering areas within the county include North Island Naval Air Station, Lake Murray, Lake Hodges, Sweetwater, Morena, Mission Bay, Mesa College, Marron Valley, Torrey Pines State Reserve, and National City. Nests are generally built near water, often in large trees, snags, and dead-topped trees in open forest habitats for cover. The species requires clear, open waters for foraging. Within San Diego County, it is often found near large bodies of water (Unitt 2004). The osprey is a year-long, diurnal species. It preys mostly on fish but will also take mammals, birds, reptiles, amphibians, and invertebrates. The osprey breeds from March through September. An average clutch size is one to four eggs. Colonial nesting is common. Ospreys will build large stick nests and often reuse them year after year (Unitt 2004). They will build nests on trees, cliffs, or man-made structures. Young can breed when 3 years old. In California, the osprey migrates south along the coast and the western

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slope of the Sierra Nevada to Central and South America in October. Ospreys arrive on their nesting grounds mid-March to early April. Pesticides have caused reproductive failure in the past (Garber 1972). However reproductive success appears to be increasing since the early 1970s (Airola and Shubert 1981; Unitt 2004).

#### *Habitat within the BSA*

The osprey is found foraging over the open waters of the BSA and was documented within the BSA during the 2009 BioBlitz and during the monthly bird counts. This species will also utilize any habitat within the BSA with an available perch, including the ground. Potentially suitable nesting habitat is present within the northeast corner of the BSA where there are large trees.

#### Northern Harrier

The northern harrier is a state species of special concern. San Diego County lies at the southwest edge of the harrier's breeding range in North America (Johnsgard 1988). Northern harrier is an uncommon to fairly common winter visitor and rare and local summer resident in the coastal lowlands of San Diego County (Unitt 2004). Since the mid-1970s, some documented nesting locations in San Diego County include Marine Corps Base Camp Pendleton and Sweetwater River estuary, Otay Ranch (Ogden 1992), and Proctor Valley (Unitt 2004). Harriers breed in marshes and grasslands and forage in grasslands, agricultural fields, wetlands, and open coastal sage scrub.

Home ranges and breeding territories are variable in size and probably reflect differing habitat resources (Johnsgard 1988). This species responds to local prey abundance and can therefore be spatially unpredictable. Reproduction is similarly flexible, with no long-term pair bonds and little site fidelity between years. Males are facultatively polygamous under conditions of abundant food.

#### *Habitat within the BSA*

Northern harrier is typically found utilizing the marshes, grasslands, and saltpan/open water habitats and was documented during monthly bird counts within the BSA. Suitable nesting and foraging habitat occurs throughout the BSA.

#### Western Bluebird

The western bluebird is a proposed covered species in the North County MSCP and Encinitas Subarea Plan. This species is a common resident of San Diego County's foothills and meadows,



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especially where meadows lie among groves of oak or pine (Unitt 2004). The western bluebird is a cavity nester and competes heavily with many other species for holes in trees. Although there is competition for nesting sites for the western bluebird, this species appears to be expanding its range and colonizing urban areas with mature trees and large lawns (Unitt 2004). Insects are the primary food source during the warmer months, and during the winter season this species favors berries and is especially attracted to mistletoe.

The breeding distribution of western bluebirds in San Diego County is largely associated with montane coniferous and oak woodlands. Where these habitats occur (mainly the mountains of San Diego County), this species is relatively abundant during the breeding season. Approaching the coast, the western bluebird becomes less abundant and more localized (Unitt 2004). Nesting of this species is primarily in early April through the end of June.

#### *Habitat within the BSA*

Western bluebird is primarily found along the chaparral and nonnative grassland edge abutting the residential areas along the southern and eastern areas of the Central Basin and East Basin and was documented within the BSA during the 2009 BioBlitz and during the monthly bird counts. Suitable nesting and foraging habitat occurs within these areas.

### **Mammals**

#### California Mastiff Bat

The California mastiff bat is listed as a state species of special concern. Historically, mastiff bats were widespread in the California central valley and coastal lowlands from the San Francisco Bay area southward to San Diego. It ranges from central California southward to central Mexico. In California, mastiff bats have been recorded from the central Sierra Nevada and from Yosemite Valley, but all other reports are from lower-lying regions. This species is resident within the state throughout the year but probably makes local seasonal movements. In San Diego County, mastiff bats are found in areas of chaparral or live oaks and in more arid, rocky regions. Mastiff bats favor rugged, rocky areas where suitable crevices are available for day-roosts. They inhabit crevices in cliff faces, high buildings, trees, and tunnels. Mastiff bats feed primarily on moths (which constitute approximately 80 percent of their diet), dragonflies, beetles, and hymenopterans, but also eat ground-living crickets and grasshoppers. Williams (1986) conjectures that extensive loss of habitat due to urbanization of coastal basins, marsh drainage, and cultivation of major foraging areas are likely factors in the decline. Widespread use of insecticides may have reduced insect abundance and also poisoned some bats.

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### *Habitat within the BSA*

California mastiff bat was detected during the BioBlitz in 2009. Suitable foraging habitat exists throughout the BSA. Large trees within the BSA provide some suitable roosting habitat.

### Western Red Bat

The western red bat is locally common in some areas of California, occurring from Shasta County to the Mexican border, west of the Sierra Nevada/Cascade crest and deserts. The winter range includes western lowlands and coastal regions south of San Francisco Bay. There is migration between summer and winter ranges, and migrants may be found outside the normal range. Roosting habitat includes forests and woodlands from sea level up through mixed conifer forests. This species roosts in the foliage of large shrubs and trees, usually sheltering on the underside of overhanging leaves. Foraging has been noted in habitats such as mature orchards, oak woodland, low-elevation conifer forest, along riparian corridors, among nonnative trees in urban and rural residential areas, and also near strong lights that attract flying insects. In addition, this species may forage in habitats and agricultural areas adjacent to streams and rivers that do not provide roosting habitat.

### *Habitat within the BSA*

Western red bat was detected during the BioBlitz in 2009. Suitable foraging and roosting habitat exists throughout the BSA. Large trees within the BSA provide some suitable roosting habitat.

### Southern Mule Deer

The southern mule deer is considered a harvest species by CDFW. The range of the southern mule deer extends throughout the western United States. While the southern mule deer occupies almost all types of habitat within its range, it prefers arid, open areas and rocky hillsides. The mating season for southern mule deer reaches its peak in November and December, as antlered stags round up females and fight for their possession. Males and females mix freely while traveling together in groups during winter months. Southern mule deer in the arid southwest may migrate in response to rainfall patterns.

### *Habitat within the BSA*

The southern mule deer was detected during the BioBlitz in 2009. This species is expected to occur within suitable riparian/upland-transitional and upland habitats throughout the BSA.

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Southern mule deer likely use Escondido Creek as a regional corridor to other open space habitat.

### **3.5 CRITICAL HABITAT**

USFWS designates critical habitat for federally threatened and endangered species. However, not all threatened and endangered species have designated critical habitat. Critical habitat is a term defined and used in the federal ESA. It is a specific geographic area(s) that is essential for the conservation of a threatened or endangered species and that may require special management and protection. Critical habitat may include an area that is not currently occupied by the species but will be needed for its recovery. An area is designated as “critical habitat” after USFWS publishes final boundaries of the critical habitat area in the *Federal Register*.

The areas shown on critical habitat maps are often large, but it is important to note that the entire mapped area may not be considered critical habitat. Only areas that contain the primary constituent elements (PCEs) required by the target species are considered critical habitat. PCEs are the elements of physical or biological features that, when laid out in the appropriate quantity and spatial arrangement to provide for a species’ life-history processes, are essential to the conservation of the species. PCEs may include but are not limited to (1) space for individual and population growth and for normal behavior; (2) food, water, air, light, minerals, or other nutritional or physiological requirements; (3) cover or shelter; (4) sites for breeding, reproduction, or rearing (or development) of offspring; and (5) habitats that are protected from disturbance or are representative of the historical, geographical, and ecological distributions of a species (USFWS 2011).

Of the federally listed species known to occur within San Elijo Lagoon, two have critical habitat mapped within the BSA: coastal California gnatcatcher and western snowy plover. California gnatcatcher critical habitat was originally proposed in 2000 and subsequently revised in 2007 by USFWS (72 FR 72009). Approximately 205 acres of coastal California gnatcatcher critical habitat occurs within the BSA, as shown in Figure 3-7. California gnatcatcher critical habitat occurs primarily within the coastal sage scrub and chaparral upland habitats surrounding the lagoon. PCEs for the coastal California gnatcatcher include dynamic and successional sage scrub habitats that provide adequate space for population growth, normal behavior, breeding, reproduction, nesting, dispersal, and foraging. PCEs may also include non-sage scrub habitats (e.g., chaparral, grassland, and riparian areas) in proximity to sage scrub habitats that provide space for dispersal, foraging, and nesting.

Western snowy plover critical habitat was originally proposed in 1995 but was not finalized until 1999 (USFWS 1999). It was subsequently revised as part of the final rule in 2005 (USFWS

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2005). In 2012, the critical habitat was once again updated and at that time approximately 15 acres was identified within San Elijo Lagoon and the BSA, including three potential nest sites (individual Subunits CA 51A, CA 51B, and CA 51C) (77 FR 36728) (Figure 3-8). It is important to note that the new designation of critical habitat within San Elijo Lagoon is a direct result of the SELRP restoration planning effort and the identified subunits for western snowy plover correspond to future nesting sites. PCEs for western snowy plover, including sandy beaches and tidally influenced estuarine mud flats with tide-cast organic debris supporting small invertebrates, would be restored as a part of this project.

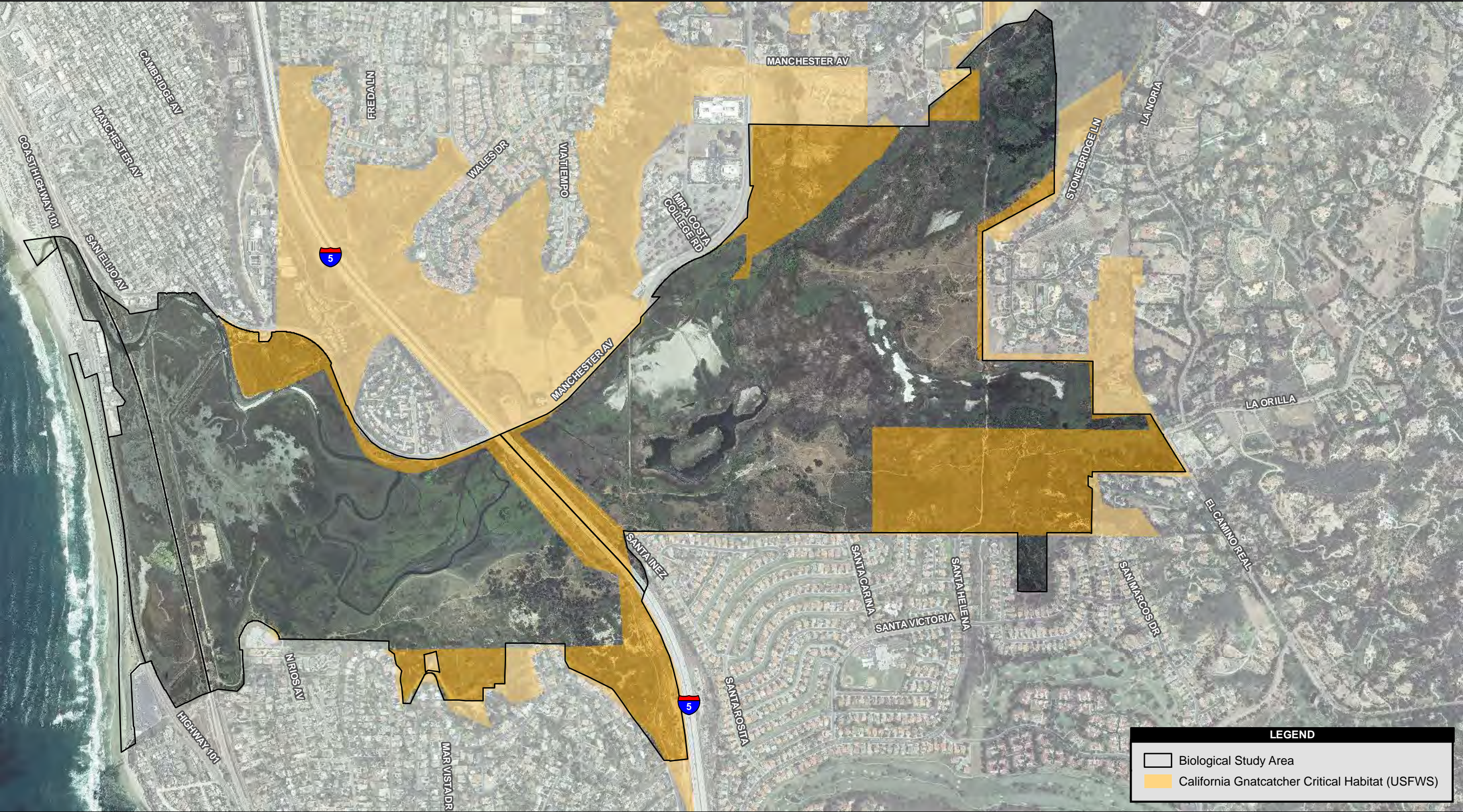
### **3.6 WILDLIFE MOVEMENT**

Connectivity, or the ability of organisms to move through a landscape, is essential in heterogeneous landscapes, especially in increasingly urban settings, for the persistence of healthy and genetically diverse animal communities. Corridors can facilitate connectivity on different temporal and spatial scales. Corridors are linear landscape features that allow for species movement over time between two patches of habitat or patches of vital resources that would otherwise be disconnected (Beier and Noss 1998; Lidicker and Peterson 1999; Beier et al. 2008). Because many wildlife species have species-specific habitat requirements for survival and dispersal, corridors may also be species specific. At a minimum, corridors promote local colonization or recolonization of distinct habitat patches and potentially increase genetic variability within and between populations. Isolation of populations can have harmful effects on both population genetics and metapopulation dynamics. In addition, increased exposure to an inhospitable urban matrix due to reductions in connectivity can increase general mortality. All of these factors can contribute significantly to local species extinctions. Thus, corridors help species populations, distributed in and among habitat patches, to persist over time.

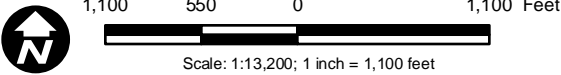
Local corridors allow resident animals to access critical resources (food, water, and cover) in other areas that might otherwise be isolated. A wildlife movement study was not conducted within the BSA; however, the area is important to local wildlife movement. In general, wildlife species are likely to use habitat in the BSA for movements related to home range activities (foraging for food or water, defending territories, searching for mates, breeding areas, or cover).

Regional corridors link two or more large areas of natural open space. San Elijo Lagoon is not functioning as a regional corridor. Instead, it is a large area of natural open space connected to Escondido Creek. Escondido Creek links San Elijo Lagoon with other open space habitat in Harmony Grove and the Elfin Forest to the northeast. San Elijo Lagoon is important in that it provides a large area of habitat for core populations of sensitive wildlife and plant species.





Source: SANDAG 2012; USFWS; AECOM 2014



**Figure 3-7**  
**California Gnatcatcher Critical Habitat**



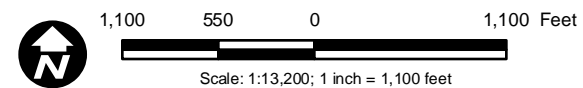
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Source: SANDAG 2012; USFWS; AECOM 2014



**Figure 3-8**  
**Western Snowy Plover Critical Habitat**



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## **CHAPTER 4.0**

### **PROJECT IMPACTS**

#### **4.1 GUIDELINES FOR DETERMINING SIGNIFICANCE**

This section addresses project-related benefits and/or impacts on vegetation communities and special-status plant and wildlife species that would occur during project construction and also with post-habitat restoration. Direct and indirect impacts may be either long term or short term. These impact categories are defined below.

Long-Term Changes: For the purposes of this restoration project, long-term changes in the environment are those changes that are anticipated to occur or be maintained over the long term (i.e., changes that will remain post-construction and after the conclusion of the 5 year monitoring program).

Short-Term Changes: Any benefits or impacts considered to have reversible effects on biological resources can be viewed as temporary. Newly planted vegetation will take time to establish and become suitable breeding and foraging habitat. These impacts are therefore considered short-term impacts and would occur to habitats/waters/species but be reversible over 5–10 years, as vegetation becomes established. In addition, short-term impacts may be construction related, and may include the generation of fugitive dust during construction and construction-related noise.

For the purpose of this analysis, the following applicable thresholds of significance have been used to determine whether implementing the project would result in a significant impact. These thresholds of significance are based on Appendix G of the CEQA Guidelines, County of San Biological Resources Diego Guidelines for Determining Significance (San Diego County 2010) as well as criteria developed in previous beach sand projects. A significant impact related to biological resources would occur if implementation of the Proposed Project would result in the following.

#### Sensitive Riparian and Natural Vegetation Communities

- The project would have a substantial adverse effect on riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by CDFW or USFWS.

All habitats within the San Elijo Lagoon BSA, as well as aquatic habitats (high-relief reefs and vegetated low-relief reefs) that may be located offshore of the sand disposal locations, are

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considered sensitive based on local, regional, and state guidance, with the exception of eucalyptus woodland, disturbed habitat, and other land cover types such as developed. For the purposes of this project, the term “substantial” is defined as a temporary or permanent change that would cause a loss of more than 50 percent of a sensitive habitat, because greater than 50 percent loss of any sensitive habitat is considered to have the potential to threaten the continued existence of a sensitive species known to occur within San Elijo Lagoon, as described in more detail in the Sensitive Species section below (Chambers Group 2001).

In addition to sensitive habitat communities, specially designated habitats must also be considered, including USFWS Critical Habitat and EFH. For the purposes of this project, a permanent loss or substantial degradation of USFWS Critical Habitat and/ or EFH would be considered significant.

### Wetlands

- The project would have a substantial adverse effect on local, state, and federally protected wetlands/waters.

The majority of San Elijo Lagoon is considered a jurisdictional water/wetland by the Corps, CDFW, RWQCB, and County of San Diego. For the purpose of this project, a substantial adverse effect on a federally protected wetland would include a permanent loss of wetlands in terms of aquatic function and value. Potential water quality impacts (including turbidity, salinity, etc.) associated with wetland function and value are addressed in the Water Quality Section, of the environmental impact report (EIR)/EIS and are not addressed herein.

### Sensitive Species

- Have a substantial adverse effect, either directly or through habitat modifications, on a candidate, sensitive, or special-status species listed in local or regional plans, policies, or regulations, or by CDFW or USFWS, or the population or habitat of rare, threatened, or endangered species or species of special concern.

For the purposes of this project, the term “substantial” is defined as a temporary or permanent change that would cause a decline in the local population of a species to below self-sustaining levels within San Elijo Lagoon. Data are lacking for most species regarding the size of a self-sustaining population for a given area of habitat; however, for the purposes of this analysis, a 50 percent decline in the lagoon breeding population (i.e., movement out of lagoon and not direct mortality) or a temporary loss of more than 50 percent of the suitable nesting habitat for that population at the lagoon, was considered a threat to the continued existence of the San Elijo

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Lagoon population (Chambers Group 2001). In addition, the direct loss of adults, eggs, or young of species listed as endangered or threatened would be a significant impact. For example, an impact would be considered less than significant if the selected SELRP alternative would ultimately contribute to the long-term increase of the population even though construction would result in a temporary loss of 35 percent of the nesting areas or breeding habitat for species listed as endangered or threatened.

In addition, an increase in noise to a level that would substantially modify breeding or foraging behavior of rare, threatened, or endangered species or species of special concern would be considered significant.

- Have a substantial adverse effect on the movement of a native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

For the purposes of this project, impacts would be considered significant, if the project would substantially interfere with wildlife access to foraging habitat, breeding habitat, water sources, or other areas necessary for reproduction, or if the project would introduce roads/trails or other permanent features that would impede wildlife movement through a local or regional wildlife corridor.

#### Local Ordinances, Policies, Adopted Plans

- Conflict with one or more local policies or ordinances protecting biological resources and/or conflict with the provisions of an adopted HCP; Natural Community Conservation Plan, or other approved local, regional or state habitat conservation plan.

For the purposes of this project, an inconsistency with goals of the County of San Diego MHCP, and North County MSCP would be considered potentially significant.

## **4.2 ALTERNATIVE 2A – PROPOSED PROJECT**

### **4.2.1 Sensitive Riparian and Natural Vegetation Communities**

The proposed SELRP would result in short-term and long-term changes to sensitive vegetation communities. Short-term changes would result from project construction and direct impacts to vegetation from grading, dredging, and project construction (Figure 4-1). Long-term changes to sensitive vegetation communities would occur 5–10 years post-restoration, as vegetation in the lagoon becomes reestablished at the new elevations/grade. These anticipated changes to sensitive vegetation within the lagoon are described in detail below.

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## Short-term

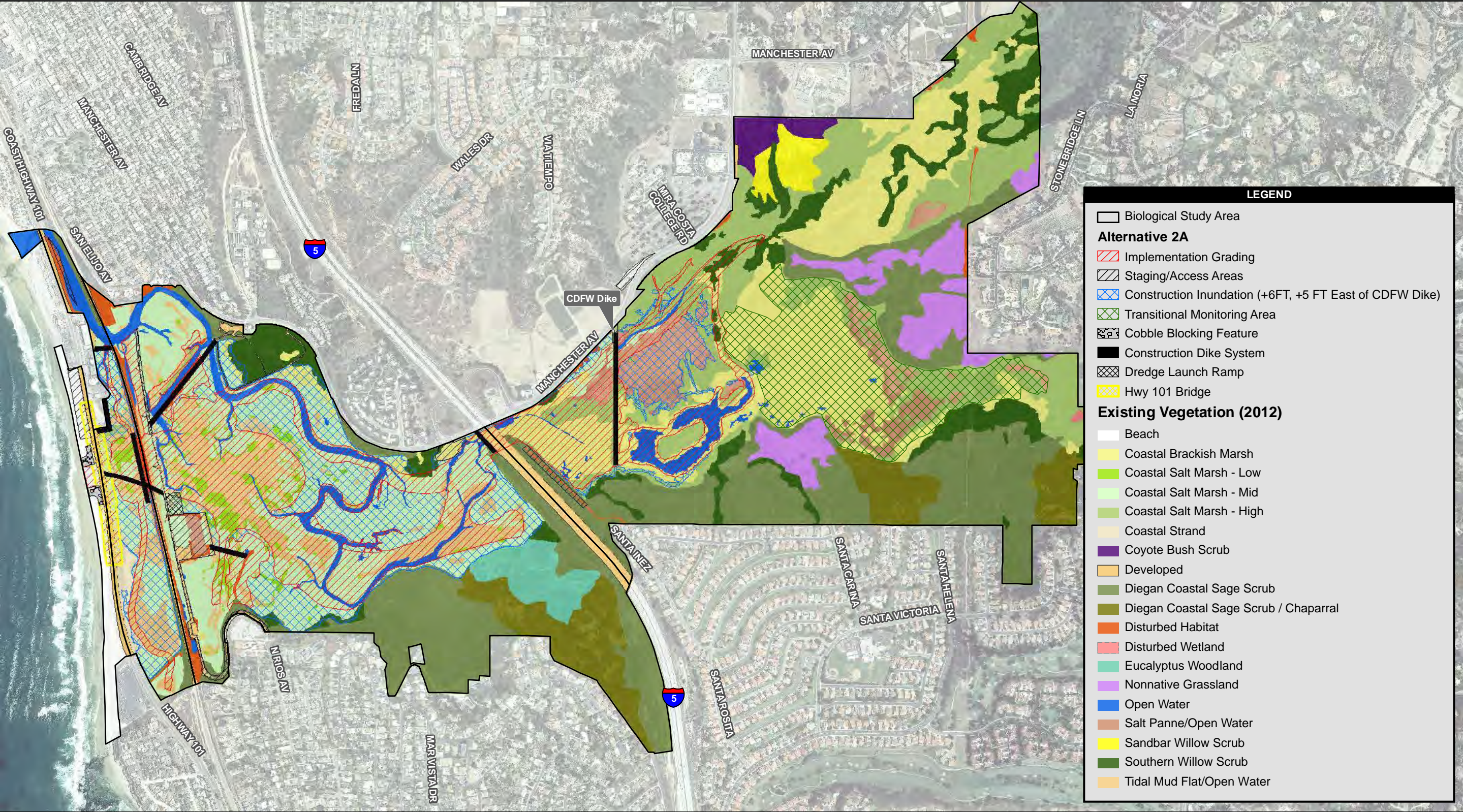
Construction of Alternative 2A would result in temporary impacts to sensitive habitats associated with grading and dredging operations (Figure 4-1), as well as from extended inundation. The project is anticipated to take approximately 3 years to construct and would be phased to minimize impacts to lagoon habitats, allowing for refuge for species and retaining some habitat areas at any given time during construction. Phasing includes limitations on the overall duration of time a lagoon basin would be impacted, as well as limitations on the overall inundation and construction area within a given basin. Inundation would allow for dredging of channels within each basin. As described in Chapter 1.0, inundation durations were minimized to the extent practicable and vary by lagoon basin (west, central, or east) (see design features discussion in Section 1.2.3.5). Impacts are identified by basin in Table 4-1 and summarized for the entire BSA in Table 4-2. Impacts are separated into two types of short-term impacts: areas that would be graded/dredged during construction, areas that would be affected by inundation only.

Alternative 2A would result in temporary impacts to 32 percent of San Elijo Lagoon. Grading/dredging impacts would occur to approximately 198 acres (approximately 20 percent) of habitat and inundation would impact an additional 110 acres (approximately 12 percent) of habitat within the San Elijo Lagoon BSA (Figure 4-1). The extensive hillsides along the lagoon and the eastern end of the BSA would not be impacted by restoration construction.

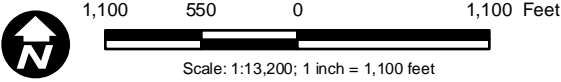
The primary concern for temporal loss of habitat is reduced availability of food and shelter for resident and migratory species that rely on the lagoon. As noted above, temporary impacts to sensitive habitats were considered significant if more than 50 percent of a sensitive habitat within the lagoon would be lost for more than 12 months. Vegetation that would be inundated, but not graded or otherwise altered, may survive the extended inundation periods, but there is lack of verifiable data to make an accurate conclusion as to how much of the vegetation would be expected to survive. Because all areas would be inundated for 3 months or longer, it is assumed that inundated vegetation would not survive (i.e., habitat would be lost for more than 12 months) as a worst-case scenario. The Adaptive Management Program for the project, as described in Chapter 1.0, includes measures for monitoring and maintenance activities to aid in the recovery of inundated vegetation communities.

The duration in which vegetation may be temporarily lost would vary based on the basin, type of impact (dredged/graded or inundated), species tolerance to inundation, and recovery period. This length of impact may be as short as 6–12 months for habitats inundated in the west basin, due to the shorter duration of inundation (estimated to be 3.5 months) and may be greater than 5 years for habitats that would be grubbed and graded during construction. As shown in Table 4-1, restoration construction would result in greater than 50 percent temporal loss of sensitive habitats





Source: SANDAG 2012; Moffatt/Nichol; AECOM 2013



**Figure 4-1**  
**Alternative 2A Impacts to Vegetation Communities**



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**Table 4-1**  
**Direct Project Impacts from Construction of Alternative 2A by Basin**

| <b>Basin/Habitat Community</b>      | <b>Existing Vegetation (acres) within the BSA</b> | <b>Alternative 2A Direct Impacts from Dredging/Grading (acres)</b> | <b>Alternative 2A Direct Impacts from Inundation</b> | <b>Habitat Temporarily Impacted (% in BSA)</b> |
|-------------------------------------|---|--|--|--|
| <b>Central Basin</b>                |   |  |  |  |
| Coastal Brackish Marsh              | 6.1   | 1.5  | 3.7  | 85%  |
| Coastal Salt Marsh — High           | 0.7   | 0.7  | 0  | 100%   |
| Coastal Salt Marsh — Low            | 11.8  | 8.8  | 2.3  | 94%  |
| Coastal Salt Marsh — Mid            | 121.3   | 49.0   | 52.3   | 84%  |
| Developed                           | 10.4  | 3.4  | 0  | 33%  |
| Diegan Coastal Sage Scrub           | 67.0  | 1.0  | 0.8  | 3%   |
| Diegan Coastal Sage Scrub/Chaparral | 27.7  | 0  | 0  | 0%   |
| Disturbed Habitat                   | 6.7   | 2.3  | 0  | 34%  |
| Eucalyptus Woodland                 | 15.7  | 0  | 0.1  | 1%   |
| Open Water                          | 23.7  | 15.5   | 2.0  | 74%  |
| Saltpan/Open Water                  | 1.5   | 1.5  | 0  | 100%   |
| Southern Willow Scrub               | 14.4  | 0.4  | 2.2  | 18%  |
| Tidal Mud Flat                      | 49.3  | 37.5   | 6.8  | 90%  |
| <b>Total for Central Basin</b>      | <b>356.3</b>                                      | <b>121.6</b>   | <b>70.3</b>  | <b>54%</b>                                     |
| <b>Coastal Area</b>                 |   |  |  |  |
| Beach                               | 15.0  | 4.9  | 0  | 33%  |
| Developed                           | 3.0   | 1.5  | 0  | 50%  |
| Open Water                          | 1.5   | 0  | 0  | 0%   |
| <b>Total for Coastal Area</b>       | <b>19.5</b>                                       | <b>6.4</b>   | <b>0</b>   | <b>33%</b>                                     |
| <b>East Basin</b>                   |   |  |  |  |
| Coastal Brackish Marsh              | 125.4   | 22.2   | 0.6  | 18%  |
| Coastal Salt Marsh — High           | 118.5   | 11.7   | 2.6  | 12%  |
| Coastal Salt Marsh — Mid            | 3.4   | 2.3  | 1.1  | 100%   |
| Coyote Bush Scrub                   | 7.5   | 0  | 0  | 0%   |
| Developed                           | 4.9   | 0.9  | 0  | 18%  |
| Diegan Coastal Sage Scrub           | 108.1   | 1.5  | 0  | 1%   |
| Diegan Coastal Sage Scrub/Chaparral | 21.6  | 0  | 0  | 0%   |
| Disturbed Habitat                   | 2.6   | 0.4  | 0.2  | 23%  |
| Disturbed Wetland                   | 1.1   | 0  | 0  | 0%   |
| Eucalyptus Woodland                 | 3.4   | 0  | 0  | 0%   |
| Nonnative Grassland                 | 33.1  | 0  | 0  | 0%   |
| Open Water                          | 10.6  | 9.5  | 0.1  | 91%  |
| Saltpan/Open Water                  | 35.4  | 5.1  | 13.7   | 53%  |
| Sandbar Willow Scrub                | 8.9   | 0  | 0  | 0%   |
| Southern Willow Scrub               | 46.9  | 2.2  | 0.1  | 5%   |
| <b>Total for East Basin</b>         | <b>531.5</b>                                      | <b>55.9</b>  | <b>18.5</b>  | <b>14%</b>                                     |
| <b>West Basin</b>                   |   |  |  |  |
| Coastal Salt Marsh — High           | 0.8   | 0.2  | 0.6  | 100%   |
| Coastal Salt Marsh — Low            | 1.5   | 1.3  | 0.2  | 100%   |

| <b>Basin/Habitat Community</b> | <b>Existing Vegetation (acres) within the BSA</b> | <b>Alternative 2A Direct Impacts from Dredging/Grading (acres)</b> | <b>Alternative 2A Direct Impacts from Inundation</b> | <b>Habitat Temporarily Impacted (% in BSA)</b> |
|--------------------------------|---|--|--|--|
| Coastal Salt Marsh — Mid       | 16.7  | 4.2  | 10.7   | 89%  |
| Coastal Strand                 | 5.0   | 1.2  | 1.1  | 46%  |
| Developed                      | 5.2   | 1.4  | 0  | 27%  |
| Diegan Coastal Sage Scrub      | 3.1   | 0  | 0  | 0%   |
| Disturbed Habitat              | 2.5   | 0.7  | 0.4  | 44%  |
| Open Water                     | 4.3   | 0.7  | 0.3  | 23%  |
| Tidal Mud Flat                 | 13.8  | 5.1  | 8.3  | 97%  |
| <b>Total for West Basin</b>    | <b>52.9</b>                                       | <b>14.8</b>  | <b>21.7</b>  | <b>69%</b>                                     |
| <b>TOTAL</b>                   | <b>960.2</b>                                      | <b>197.8</b>   | <b>110.6</b>   | <b>32%</b>                                     |

BSA = Biological Study Area

**Table 4-2**  
**Direct Project Impacts from Construction of Alternative 2A**

| <b>Basin/Habitat Community</b>        | <b>Existing Vegetation (acres) within the BSA</b> | <b>Alternative 2A Direct Impacts from Dredging/Grading (acres)</b> | <b>Alternative 2A Direct Impacts from Inundation</b> | <b>Habitat Temporarily Impacted (% in BSA)</b> |
|---------------------------------------|---|--|--|--|
| Beach                                 | 15.0  | 4.9  | 0  | 33%  |
| Coastal Brackish Marsh                | 131.5   | 23.7   | 4.3  | 21%  |
| Coastal Salt Marsh – High             | 120.0   | 12.6   | 3.2  | 13%  |
| Coastal Salt Marsh – Low              | 13.3  | 10.2   | 2.4  | 95%  |
| Coastal Salt Marsh – Mid              | 141.4   | 55.4   | 64.0   | 84%  |
| Coastal Strand                        | 5.0   | 1.2  | 1.1  | 46%  |
| Coyote Bush Scrub                     | 7.5   | 0  | 0  | 0%   |
| Developed                             | 23.4  | 7.3  | 0.1  | 32%  |
| Diegan Coastal Sage Scrub             | 178.2   | 2.5  | 1.0  | 2%   |
| Diegan Coastal Sage Scrub / Chaparral | 49.3  | 0  | 0.0  | 0%   |
| Disturbed Wetland                     | 1.1   | 0  | 0  | 0%   |
| Disturbed Habitat                     | 11.9  | 3.4  | 0.6  | 34%  |
| Eucalyptus Woodland                   | 19.1  | 0  | 0.1  | 1%   |
| Nonnative Grassland                   | 33.1  | 0  | 0  | 0%   |
| Open Water                            | 40.1  | 25.7   | 2.4  | 70%  |
| Saltpan/Open Water                    | 37.0  | 6.6  | 13.7   | 55%  |
| Sandbar Willow Scrub                  | 8.9   | 0  | 0  | 0%   |
| Southern Willow Scrub                 | 61.3  | 2.6  | 2.3  | 8%   |
| Tidal Mud Flat/Open Water             | 63.1  | 42.6   | 15.1   | 91%  |
| <b>Grand Total</b>                    | <b>960.2</b>                                      | <b>197.8</b>   | <b>110.6</b>   | <b>32%</b>                                     |

BSA = Biological Study Area

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that would be significantly impacted by construction including coastal salt marsh (low-and mid), open water, saltpan/open water, and tidal mudflats. The temporal loss of these habitats may threaten local populations of sensitive resident species, as described further under Section 4.2.3. Short-term direct impacts to coastal salt marsh (low-and mid), open water, saltpan/open water, and tidal mudflats are therefore considered significant and adverse.

Temporary impacts to beach, coastal brackish marsh, high coastal salt marsh, coastal strand, Diegan coastal sage scrub, southern willow scrub, are not considered significant, because greater than 50 percent of the local habitat would remain available to local resident and migratory species during construction. Short-term direct impacts to beach, coastal brackish marsh, high coastal salt marsh, coastal strand, Diegan coastal sage scrub, and southern willow scrub are therefore considered less than significant and not substantially adverse.

No direct impacts are proposed to coyote bush scrub, Diegan coastal sage scrub/chaparral, disturbed wetland, nonnative grassland, and sandbar willow scrub.

#### USFWS Critical Habitat

Temporary impacts to approximately 15 acres of USFWS critical habitat for western snowy plover would occur as a result of construction. However, as described in the Federal Register (Vol. 77, No. 118, Part III), this habitat was designated with the expectation that the SELRP would improve the habitat (specifically the proposed nesting sites) for the plover in the long term. Western snowy plover have not nested at the lagoon in over 10 years. The long-term monitoring and management program would include species-specific goals/actions to maintain critical habitat areas for western snowy plover. Therefore, temporary impacts to western snowy plover critical habitat, for the purpose of restoration, are considered less than significant and not substantially adverse.

Coastal California gnatcatcher critical habitat would primarily remain unimpacted during restoration construction. There are two small areas where critical habitat exists in the vicinity of project grading and inundation. A very small area of critical habitat is mapped in the vicinity of the existing access road proposed for improvements, and a second area is mapped along the I-5 berm where the bridge is proposed to be widened by the I-5 North Coast Corridor Project. In the area of the proposed access road, impacts to critical habitat would be avoided by remaining within the existing roadbed and disturbed areas, as noted in Chapter 1.0, Section 1.2.3.5. Impacts to critical habitat in the area of the I-5 North Coast Corridor Project were considered and mitigated as a part of that project (Caltrans 2012). No additional impacts to gnatcatcher critical habitat would occur in this area. Therefore, no new impacts to coastal California gnatcatcher

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critical habitat would occur as a result of this restoration project and impacts are considered less than significant and not substantially adverse.

### Essential Fish Habitat

Construction of Alternative 2A would result in temporary and short-term impacts to EFH associated with grading and dredging operations (e.g., excavation, turbidity, sediment disruption). The project would be phased, allowing for refuge and retaining available habitat at any given time during construction. In addition, the lagoon does not support rocky reefs or eelgrass habitat; therefore, construction impacts would only occur to soft-bottom habitat, which is known to recover quickly. Therefore, short-term impacts to EFH are considered less than significant and not substantially adverse.

### Indirect Impacts

Indirect short-term/temporary impacts to adjacent vegetation communities, particularly uplands, are anticipated to be minimal with the implementation of Alternative 2A. Water-based construction minimizes dust, and noise impacts are considered relative to wildlife species and not vegetation. No significant or adverse indirect impacts to vegetation communities are anticipated with the proposed project.

### **Long-term**

Long-term changes in vegetation (5–10 years post-restoration) would occur from implementation of Alternative 2A, as shown in Table 4-3 and Figure 1-2. Planting to facilitate recovery of dredged or inundated habitat would occur but, as described above, it would take time before habitats are reestablished in the lagoon. Within 5–10 years following restoration, habitats are expected to have substantially recovered and matured. The overall acreage of sensitive habitats within the lagoon would remain approximately 960 acres. However, conversion from one sensitive vegetation community to another within the lagoon would occur with the dredging of channels/basins, grading, and improvements to hydrologic function.

Alternative 2A incorporates hydrologic modification in the form of a new inlet located in the middle of the west basin (Figure 1-2). In addition, a subtidal basin extending from the west basin into the central basin would connect to enlarged tidal channels extending north and east. Alternative 2A would also include creation of an extensive network of tidal channels in the east basin. The tidal connection between the central and east basins would be widened and deepened.



**Table 4-3**  
**San Elijo Lagoon Restoration Project Post-Restoration Vegetation Summary**

| <b>Habitat Description</b>           | <b>Existing<br/>(2012)</b> | <b>Alternative<br/>2A</b> | <b>Alternative<br/>1B</b> | <b>Alternative<br/>1A</b> | <b>No<br/>Project/No<br/>Federal<br/>Action</b> |
|--------------------------------------|----------------------------|---------------------------|---------------------------|---------------------------|---|
| Avian Island                         | 0                          | 2                         | 2                         | 2                         | 0   |
| Mudflat                              | 63                         | 102                       | 71                        | 25                        | 29  |
| Low-Marsh                            | 13                         | 23                        | 51                        | 44                        | 51  |
| Mid-Marsh                            | 141                        | 124                       | 98                        | 140                       | 107   |
| High-Marsh                           | 120                        | 107                       | 124                       | 145                       | 167   |
| Saltpan                              | 37                         | 17                        | 30                        | 35                        | 37  |
| Freshwater/Brackish Marsh            | 132                        | 96                        | 99                        | 121                       | 131   |
| Open Water/Tidal Channels and Basins | 40                         | 74                        | 67                        | 34                        | 24  |
| Riparian                             | 72                         | 67                        | 67                        | 70                        | 71  |
| Coastal Strand                       | 5                          | 5                         | 5                         | 5                         | 5   |
| Uplands & Others                     | 299                        | 292                       | 295                       | 299                       | 299   |
| Beach                                | 15                         | 14                        | 15                        | 15                        | 15  |
| Berms and Roads                      | 23                         | 24                        | 24                        | 24                        | 23  |
| Transitional (man-made)              | 0                          | 12                        | 12                        | 2                         | 0   |
| <b>Total<sup>1</sup></b>             | <b>960</b>                 | <b>960</b>                | <b>960</b>                | <b>960</b>                | <b>960</b>                                      |

<sup>1</sup> Totals may not sum due to rounding.

The primary change in habitat distributions under Alternative 2A would be an increase in subtidal habitat and mudflat within the lagoon compared to both existing conditions and the predicted No Project/No Federal Action conditions. Subtidal habitat would be increased in all three lagoon basins compared to existing conditions. Mudflat and mid-salt marsh habitats would increase due to conversion of saltpan, fresh/brackish marsh, open water/freshwater marsh, and habitats that currently occupy the transition zone.

Alternative 2A would facilitate efficient conveyance of seasonal freshwater flows through the subtidal basin and out through the new inlet. Freshwater flows could also be conveyed to the ocean via the existing inlet if naturally breached. Alternative 2A would require a new bridge on Highway 101 at the new inlet location and a new railroad bridge (proposed by others) to span the new inlet. Other infrastructure, such as Cobble Blocking Features, would be required to increase the stability of the new tidal inlet. An avian nesting area would be established in the central basin. A large portion of the saltpan habitat in the east basin would likely transition to salt marsh, limiting management options for avian nesting.

The overall acreage of habitat available for sensitive species would remain unchanged with this alternative, but benefits from the improved hydrologic function of the lagoon are expected. When considering changes to sensitive habitats, a change from one sensitive habitat to another does not necessarily represent a positive or negative impact. Rather, the ecological ramifications of the

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change on sensitive species and lagoon ecology would be the primary indicators of impact. As described in Chapter 1.0, existing lagoon habitat is rapidly converting, with continued loss of mudflat and rapid increase in low-and mid-salt marsh. Evidence of this rapid conversion is apparent in numerous surveys over time and in recent surveys conducted between 2010 and 2012. During the 2-year period between the 2010 and 2012 surveys, low-and mid-salt marsh habitat (dominated by cordgrass and pickleweed) increased by 13 acres and mudflats decreased by 12 acres. With rapid transition to salt marsh, there is a reduction in available foraging habitat for sensitive and nonsensitive birds, which has the potential for substantial ecological changes in the lagoon and is expected to dramatically change the diversity and density of wildlife that the lagoon is able to continue to support. With implementation of Alternative 2A, San Elijo Lagoon would experience improved hydrologic function and increased foraging habitat, and the rapid changes (loss of mudflat and conversion of low marsh to mid marsh) occurring under existing conditions and projected to continue under the No Project/No Federal Action Alternative would reverse. Species-specific impacts associated with these changes are evaluated below. With improved lagoon ecology, increased foraging for species, and no overall loss of lagoon resources, direct impacts to sensitive vegetation communities with implementation of Alternative 2A are considered less than significant and not substantially adverse.

#### USFWS Critical Habitat

No long-term impacts to USFWS critical habitat are anticipated for western snowy plover. Western snowy plover habitat would be improved with the proposed construction of Alternative 2A, as described in Section 4.3.2 below. No long-term loss of critical habitat is anticipated with project restoration. No new or permanent impacts would occur to coastal California gnatcatcher critical habitat as a result of this project. Impacts associated with the I-5 North Coast Corridor Project would be mitigated via that project. Therefore, long-term impacts to USFWS critical habitat are considered less than significant and not substantially adverse.

#### Essential Fish Habitat

Construction of Alternative 2A would result in long-term beneficial impacts to EFH because it would create additional acreages of open water, tidal channels, and mudflat habitat, as well as enhance the conditions of existing subtidal habitat by increasing tidal influence within the lagoon. This additional habitat would support local fish populations and therefore would benefit EFH within the project area. Therefore, no long-term significant or substantially adverse impact to EFH is anticipated with implementation of Alternative 2A.

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#### **4.2.2 Jurisdictional Waters and Wetlands**

##### **Short term**

Construction of Alternative 2A would result in temporary or short-term direct impacts to jurisdictional waters and wetlands due to grading and dredging operations. Of the approximately 620 acres of jurisdictional area present in the BSA, 280 acres would be directly impacted by construction (172.5 acres from grading/dredging and 107.6 acres from inundation). These impacts would include the short-term loss of vegetation as described above, and potential impacts to water quality associated with construction. As described in Chapter 1.0, several project design features have been incorporated to reduce temporary impacts on water quality within the lagoon. Due to the temporary nature of the direct impacts, and with implementation of project design features and compliance with local requirements for best management practices (BMP)s, short-term impacts to jurisdictional waters and wetlands associated with restoration construction are considered less than significant and not substantially adverse.

##### **Indirect impacts**

Short-term indirect impacts to jurisdictional waters would include changes in habitat or water quality that may result from project implementation. Indirect impacts to vegetation are described under sensitive vegetation communities. No significant or adverse indirect impacts to wetlands are anticipated with restoration implementation.

##### **Long-term**

Prior to construction of Alternative 2A, approximately 620 acres of the 960-acre BSA was delineated as jurisdictional waters and wetlands of the U.S. and state. Following construction of Alternative 2A, conversion from one wetland type to another would occur due to dredging of channels/basins, grading of estuarine habitats, and improvements to hydrologic function. Implementation of Alternative 2A would result in permanent impacts to 12 acres (2 percent) of the jurisdictional waters and wetlands within the BSA due to the construction of the man-made transitional areas within the east and central basins. These man-made transitional areas are designed to be above the high tide line and, as such, are not expected to meet the three-parameter wetland definition and may not be considered a wetland water of the U.S.

However, a portion of these man-made transitional areas would likely be considered waters of the state. The remaining jurisdictional waters and wetlands within the lagoon would be enhanced with improved hydrologic conditions and increased diversity. For example, the existing CDFW dike in the east basin would be removed and replaced with channel connections, which would

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increase tidal influence by allowing for salt water input and freshwater output within the east basin. Alternative 2A may result in a small decrease in jurisdictional wetland acreage overall; however, the improvement to wetland conditions and functions, as described in more detail in the 404(b)1 analysis, would more than offset this loss. Therefore, no long-term significant or adverse impacts to jurisdictional waters and wetlands are anticipated with implementation of Alternative 2A.

## Indirect Impacts

Long-term indirect impacts to jurisdictional waters would include changes in habitat or water quality that may result from project implementation. Indirect impacts to vegetation are described under sensitive vegetation communities. No significant or adverse indirect impacts to wetlands are anticipated with restoration implementation.

### **4.2.3 Sensitive Species**

As described above, the proposed SELRP would result in short-term and long-term changes to vegetation communities that support various sensitive species. Short-term changes would result from project construction and direct impacts to flora and fauna from grading, dredging, and project construction. Long-term changes to sensitive species would occur 5–10 years post-restoration, as the conditions in the lagoon recover as a result of the modified hydrology and new elevations/grade.

#### **4.2.3.1 Flora**

##### **Federally Listed and State-Listed Plant Species**

No federally listed or state-listed rare, threatened, or endangered plant species occur within the areas proposed for restoration. One federally listed plant species, Del Mar manzanita, and one state-listed species, Orcutt's goldenbush, occur in uplands habitat and would not be affected by the proposed project. Of the 20 nonlisted sensitive plant species detected within the project area, 19 occur outside of the proposed grading limits and maintenance activity areas and are not expected to be affected by the proposed project.

Approximately four individuals of southwestern spiny rush (CNPS List 4.2) are within the grading limits of Alternative 2A and would be directly impacted. However, this direct impact is not considered significant or adverse, due to the several hundred individuals scattered throughout the mid- and high-salt marsh habitats within the lagoon. The large population of southwestern



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spiny rush is expected to persist within the lagoon, as the majority of the mid- and high-salt marsh habitats would remain intact.

Therefore, no significant or substantially adverse impacts to sensitive plant populations are anticipated with construction of Alternative 2A.

### **Nonlisted Special-status Plant Species**

Twenty-nine nonlisted special-status plant species were determined to have potential to occur in the BSA. These species are considered sensitive by the CNPS (List 1, 2, 3, or 4). Of these 29 species, 21 were found present within the BSA and the remaining eight have a moderate to high potential to occur. These species are described above in Section 3.3.3.

The following eight species were not detected during project surveys; however, they are all considered to have a potential to occur based on the presence of potential habitat within the BSA. The decision to assign a moderate or high potential to occur for each species was based on the closest known occurrence to the BSA and best professional judgment. All of these species are associated with at least one vegetation community occurring within the grading limits and controlled inundation footprint for Alternative 2A and, as such, all of these species have the potential to be impacted during construction.

- Aphanisma, *Aphanisma blitoides* (high potential)
- Coulter's saltbush, *Atriplex coulteri* (moderate potential)
- south coast saltscale, *Atriplex pacifica* (moderate potential)
- Davidson's saltscale, *Atriplex serenana* var. *davidsonii* (moderate potential)
- southern tarplant, *Centromadia parryi* ssp. *australis* (high potential)
- smooth tarplant, *Centromadia pungens* ssp. *laevis* (moderate potential)
- Brand's star phacelia, *Phacelia stellaris* (moderate potential)
- estuary seablite, *Suaeda esteroa* (high potential)

The following 18 species were detected during project surveys and occur within the BSA. All of these species are associated with at least one vegetation community occurring within the grading limits and controlled inundation footprint for Alternative 2A and, as such, all of these species have the potential to be impacted during construction.

- spineshrub, *Adolphia californica*
- San Diego sagewort, *Artemisia palmeri*
- Lewis's evening-primrose, *Camissonia lewisii*

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- Orcutt's pincushion, *Chaenactis glabriuscula* var. *orcuttiana*
  - summer holly, *Comarostaphylis diversifolia* ssp. *diversifolia*
  - sea dahlia, *Coreopsis maritima*
  - Del Mar Mesa sand aster, *Corethrogyne filaginifolia* var. *filaginifolia* (*Corethrogyne filaginifolia* var. *linifolia*)
  - western dichondra, *Dichondra occidentalis*
  - coast wallflower, *Erysimum ammophilum*
  - coast barrel cactus, *Ferocactus viridescens* var. *viridescens*
  - Palmer's grapplinghook, *Harpagonella palmeri*
  - San Diego marsh-elder, *Iva hayesiana*
  - southwestern spiny rush, *Juncus acutus* ssp. *leopoldii*
  - Coulter's goldfields, *Lasthenia glabrata* ssp. *coulteri*
  - Nuttall's lotus, *Lotus nuttallianus*
  - California desert thorn, *Lycium californicum*
  - Coast woolly-heads, *Nemacaulis denudata* var. *denudata*
  - mesa spike-moss, *Selaginella cinerascens*

Impacts to the 26 nonlisted plant species described above would include the direct loss of individuals as well as the short-term loss of habitat from grading and inundation. Short-term loss of habitat is addressed above. In addition the restoration plan, as described in Section 1.2.3.5, requires an evaluation of the need for seed collection and plant salvage for all sensitive species, listed and nonlisted. As the project involves restoration and will specifically plan for the seed collection, plant salvage, and/or long-term monitoring of these species, it is not expected to result in the decline of any species below self-sustaining levels; impacts are considered less than significant and not substantially adverse.

The following three species were detected during project surveys within the BSA;

- wart-stemmed ceanothus, *Ceanothus verrucosus*
- Nuttall's scrub oak, *Quercus dumosa*
- Torrey pine, *Pinus torreyana* var. *torreyana*

Although these species occur within the BSA, they do not occur within the grading limits or controlled inundation footprint for Alternative 2A. Their primary habitats occur at higher elevations and include closed-cone coniferous forest, chaparral, chaparral/sandstone, and coastal scrub. No impacts to these three species as a result of project construction are expected.

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No long-term impacts to nonlisted plant species are expected as the restoration project and the corresponding improvements to ecological conditions are considered beneficial to all 29 species.

#### **4.2.3.2 Fauna**

##### **Federally Listed and State-Listed Wildlife Species**

Of the 94 special-status wildlife species that have potential to occur within the BSA, seven federally listed and/or state-listed species were detected during previous studies and are considered resident/breeding within the BSA. These include the federally listed coastal California gnatcatcher and western snowy plover; the federally listed and state-listed light-footed clapper rail, California least tern, southwestern willow flycatcher, and least Bell's vireo; and the state-listed Belding's savannah sparrow. These seven bird species utilize different habitats within the lagoon and are expected to be influenced differently by the restoration project. There is the potential for both short-term/temporary effects and long-term/permanent effects associated with the implementation of Alternative 2A. These effects may be considered negative (impact) or positive (benefit); both are discussed below.

##### **Short term**

Direct short-term effects may include the short-term loss of nesting and/or foraging habitat for sensitive species resulting from construction activities.

As part of the restoration effort, nesting and/or foraging habitat would be temporarily impacted during construction. These direct temporary impacts are summarized in Table 4-4 and are separated into two types of short-term impacts: areas that would be graded/dredged during construction and areas that would be affected by controlled inundation only. Although both impacts are direct, the duration of the temporary impacts associated with inundation are less predictable as these vegetation communities are adapted to tolerate long periods of inundation. Professional experience in various lagoons has shown impacts to some salt marsh vegetation species after 8 weeks of inundation, others tolerate 3 months, while others may even tolerate longer periods. For the purposes of this evaluation, it is assumed that more than 3 months of contiguous inundation would result in vegetation mortality. Phased construction across basins limits inundation duration and geographic extent, thereby reducing impacts to nongraded inundated areas as well as preserving some tidal and noninundated habitat areas. Construction would also restrict vegetation removal activities to outside of the nesting season. In addition, discrete locations have been identified where temporary dikes would be placed to limit inundation and allow for species refugia.

**Table 4-4**  
**Alternative 2A Impacts to Suitable Habitat for Listed Bird Species**

| Species                   | Habitat Suitability* | Habitat Type              | Existing Habitat (acres) | Habitat Impacted by Grading |         | Habitat Impacted by Inundation |         | Total Direct Impact to Existing Habitat |         |
|---------------------------|----------------------|---------------------------|--------------------------|-----------------------------|---------|--------------------------------|---------|---|---------|
|                           |                      |                           |                          | Acres                       | Percent | Acres                          | Percent | Acres                                   | Percent |
| light-footed clapper rail | Nesting/ Foraging    | Coastal Brackish Marsh    | 131.5                    | 23.7                        | 18%     | 4.3                            | 3%      | 28.0                                    | 21%     |
|                           |                      | Coastal Salt Marsh - Low  | 13.3                     | 10.1                        | 76%     | 2.5                            | 19%     | 12.6                                    | 95%     |
|                           |                      | Total Nesting             | 144.8                    | 33.8                        | 23%     | 6.8                            | 5%      | 40.6                                    | 28%     |
|                           | Foraging             | Mudflats                  | 63.1                     | 42.6                        | 68%     | 15.1                           | 24%     | 57.7                                    | 91%     |
|                           |                      | Coastal Salt Marsh – Mid  | 141.4                    | 55.5                        | 39%     | 64.1                           | 45%     | 119.6                                   | 85%     |
|                           |                      | Coastal Salt Marsh – High | 120                      | 12.6                        | 11%     | 3.2                            | 3%      | 15.8                                    | 13%     |
|                           |                      | Total Foraging            | 324.5                    | 110.7                       | 34%     | 82.4                           | 25%     | 193.1                                   | 60%     |
| California least tern     | Nesting              | Saltpan                   | 36.9                     | 6.6                         | 18%     | 13.7                           | 37%     | 20.3                                    | 55%     |
|                           |                      | Coastal Strand            | 5                        | 1.2                         | 24%     | 1.1                            | 22%     | 2.3                                     | 46%     |
|                           |                      | Nesting Area**            | 0                        | 0                           | 0%      | 0                              | 0%      | 0.0                                     | 0%      |
|                           |                      | Total Nesting             | 41.9                     | 7.8                         | 19%     | 14.8                           | 35%     | 22.6                                    | 54%     |
|                           | Foraging             | Subtidal/Channels         | 40.1                     | 25                          | 62%     | 2.4                            | 6%      | 27.4                                    | 68%     |
|                           |                      | Beach                     | 15                       | 0                           | 0%      | 0                              | 0%      | 0.0                                     | 0%      |
|                           |                      | Total Foraging            | 55.1                     | 25                          | 45%     | 2.4                            | 4%      | 27.4                                    | 50%     |
| western snowy plover      | Nesting              | CDFW dike                 | 0.4                      | 0.4                         | 100%    | 0                              | 0%      | 0.4                                     | 100%    |
|                           |                      | Saltpan                   | 36.9                     | 6.6                         | 18%     | 13.7                           | 37%     | 20.3                                    | 55%     |
|                           |                      | Coastal Strand            | 5                        | 1.2                         | 24%     | 1.1                            | 22%     | 2.3                                     | 46%     |
|                           |                      | Nesting Area**            | 0                        | 0                           | 0%      | 0                              | 0%      | 0.0                                     | 0%      |
|                           |                      | Total Nesting             | 42.3                     | 8.2                         | 19%     | 14.8                           | 35%     | 23.0                                    | 54%     |
|                           | Foraging             | Mudflats                  | 63.1                     | 42.6                        | 68%     | 15.1                           | 24%     | 57.7                                    | 91%     |
|                           |                      | Beach                     | 15                       | 0                           | 0%      | 0                              | 0%      | 0.0                                     | 0%      |
|                           |                      | Total Foraging            | 78.1                     | 42.6                        | 55%     | 15.1                           | 19%     | 57.7                                    | 74%     |



| Species                        | Habitat Suitability* | Habitat Type                            | Existing Habitat (acres) | Habitat Impacted by Grading |         | Habitat Impacted by Inundation |         | Total Direct Impact to Existing Habitat |         |
|--------------------------------|----------------------|---|--------------------------|-----------------------------|---------|--------------------------------|---------|---|---------|
|                                |                      |   |                          | Acres                       | Percent | Acres                          | Percent | Acres                                   | Percent |
| coastal California gnatcatcher | Nesting/<br>Foraging | Diegan Coastal Sage Scrub               | 178.1                    | 2.54                        | 1%      | 1                              | 1%      | 3.5                                     | 2%      |
|                                |                      | Diegan Coastal Sage Scrub/<br>Chaparral | 49.3                     | 0                           | 0%      | 0.03                           | 0%      | 0.0                                     | 0%      |
|                                |                      | Coyote Bush Scrub                       | 7.5                      | 0                           | 0%      | 0                              | 0%      | 0.0                                     | 0%      |
|                                |                      | Total Nesting/Foraging                  | 234.9                    | 2.54                        | 1%      | 1.03                           | 0%      | 3.6                                     | 2%      |
| least Bell's vireo             | Nesting/<br>Foraging | Sandbar Willow Scrub                    | 9                        | 0                           | 0%      | 0                              | 0%      | 0.0                                     | 0%      |
|                                |                      | Southern Willow Scrub                   | 61.4                     | 2.6                         | 4%      | 2.3                            | 4%      | 4.9                                     | 8%      |
|                                |                      | Total Nesting/Foraging                  | 70.4                     | 2.6                         | 4%      | 2.3                            | 3%      | 4.9                                     | 7%      |
| southwestern willow flycatcher | Nesting/<br>Foraging | Southern Willow Scrub                   | 61.4                     | 2.6                         | 4%      | 2.3                            | 4%      | 4.9                                     | 8%      |
|                                |                      | Total Nesting/Foraging                  | 61.4                     | 2.6                         | 4%      | 2.3                            | 4%      | 4.9                                     | 8%      |
| Belding's savannah sparrow     | Nesting              | Coastal Salt Marsh – Mid                | 141.4                    | 55.5                        | 39%     | 64.1                           | 45%     | 119.6                                   | 85%     |
|                                |                      | Coastal Salt Marsh – High               | 120                      | 12.6                        | 11%     | 3.2                            | 3%      | 15.8                                    | 13%     |
|                                |                      | Total Nesting                           | 261.4                    | 68.1                        | 26%     | 67.3                           | 26%     | 135.4                                   | 52%     |
|                                | Foraging             | Coastal Salt Marsh – Low                | 13.3                     | 10.1                        | 76%     | 2.5                            | 19%     | 12.6                                    | 95%     |
|                                |                      | Total Foraging                          | 13.3                     | 10.1                        | 76%     | 2.5                            | 19%     | 12.6                                    | 95%     |

CDFW = California Department of Fish and Wildlife

\*Nesting habitat is considered suitable for both breeding and foraging activities, while habitat identified as “Foraging” is not expected to support breeding activities.

\*\*Under existing conditions, a portion of the nesting area is classified as saltpan.

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### Least Bell's Vireo and Southwestern Willow Flycatcher

Both least Bell's vireo and southwestern willow flycatcher have been observed in low numbers (less than five in any given year) within the central and east basins, foraging primarily within the southern willow scrub habitat. Neither species has been documented to breed on-site although there is the potential that successful vireo breeding has occurred (Patton 2010, 2012a). Construction of Alternative 2A would directly impact 4.9 acres (8 percent) of the southern willow scrub riparian habitat within the lagoon as a result of grading and inundation (Table 4-4). Both least Bell's vireo and southwestern willow flycatcher are migratory birds. As vegetation would be removed outside of the breeding season and both species use the site primarily for foraging during summer months, the short-term impact to 8 percent of the southern willow scrub riparian habitat is not substantial and would not result in a decline in the local population below self-sustaining levels. Therefore, short-term direct impacts to least Bell's vireo and southwestern willow flycatcher would be less than significant and not substantially adverse.

### Coastal California Gnatcatcher

Coastal California gnatcatchers are observed along the periphery of San Elijo Lagoon within sage scrub and chaparral habitats. As part of construction, an access road along the southwest corner of the central basin would need to be enhanced (widened) to accommodate construction vehicular traffic. All enhancements to the access road are expected to be contained within the existing footprint. However, gnatcatchers have been observed adjacent to the road. In addition to the access road, construction vehicles would need to temporarily access the man-made transitional area to deposit material to the north of the access road. As such, brush clearing may be needed along the small eastern footpath, to a width of approximately 12 feet, as well as minor grading to fill holes. There is the potential to impact nesting and foraging coastal California gnatcatchers during vegetation removal. To avoid this potential temporary direct impact, the project has included a design feature that limits vegetation clearing to outside of the bird nesting season. Outside the nesting season, resident gnatcatchers may be present in the area. However, due to their high mobility out of the breeding season coupled with the presence of a bird monitor, short-term direct impacts to gnatcatcher associated with vegetation clearing would be avoided. Impacts associated with vegetation clearing are not considered substantial and would not result in a decline in the local population below self-sustaining levels.

### California Least Tern and Western Snowy Plover

Both California least tern and western snowy plover are documented annually foraging and roosting at San Elijo Lagoon, but neither is known to breed in the lagoon. The western snowy plover forages on mudflats, while the least tern utilizes subtidal channels and open water within

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the lagoon. Impacts to foraging habitat for both species would occur during construction, with 4.9 (33 percent) acres of beach, 27.4 (68 percent) acres of open water/tidal channels, and 57.7 acres (91 percent) of mudflat disturbed as a result of grading and controlled inundation for Alternative 2A. A total of 27.4 acres (50 percent) of California least tern and 57.7 acres (74 percent) of western snowy plover suitable foraging habitat would be impacted as a result of construction for Alternative 2A.

All impacts to foraging habitat would be phased across the three lagoon basins, and within each basin (i.e., daily dredging focused in a small area), so that large contiguous areas of foraging habitat would remain at any given time. Foraging species are highly mobile and move throughout the lagoon as well as up and down the coast; as such, the temporary loss of their potential foraging habitat is not expected to have a substantial adverse effect on these species. In addition, many of these areas post-restoration are expected to return to the same habitat type but with improved conditions as a result of improved hydrology. Although short-term impacts to foraging habitat would occur, short-term benefits are also expected. Sediment-dwelling organisms would be released into the water column during dredging, which may improve foraging efficiency for diving birds such as the least tern.

The benthic community that resides in the mudflats would be temporarily impacted; recovery time for these communities is highly variable with location and environmental conditions but may be relatively rapid. The recovery of the benthic community will be monitored as part of the monitoring and maintenance program. The relatively quick recovery time coupled with improved tidal hydrology and water quality is expected to enhance the benthic community within the lagoon and, in particular, the mudflats. The improved conditions would result in higher productivity in the restored mudflats and direct benefits to birds that forage on them, such as the western snowy plover. Similarly, the improved hydrologic and water quality conditions are expected to have a positive effect on the fish community, which is the primary food of California least tern.

#### Belding's Savannah Sparrow

Belding's savannah sparrow occupies mid- and high-marsh habitat throughout San Elijo Lagoon but are particularly dense in the central basin and western portion of the east basin where pickleweed-dominated mid-marsh habitat is prevalent. As a result of dredging and controlled inundation, Alternative 2A would temporarily impact 119.6 acres (85 percent) of mid-marsh and 15.8 acres (13 percent) of high-marsh habitat across the three basins (Table 4-4 and Figure 4-2). A total of 135.4 acres out of 261.4 acres (52 percent) of suitable nesting habitat for Belding's savannah sparrow would be impacted as a result of construction for Alternative 2A.

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Although Belding's savannah sparrows maintain territories, they do not often nest in the exact same location. In addition, the size of the territories and their boundaries are variable and change year to year based on environmental conditions, with expansion in dry years and contraction in wet years. It is anticipated that the resident birds would respond to the restoration as they do to seasonal variability by shifting and contracting their territory size to accommodate the new acreage available. The project would minimize impacts by removing vegetation outside of the breeding season to avoid direct impacts to Belding's savannah sparrow and to allow birds time needed to establish new breeding territories in unimpacted habitat.

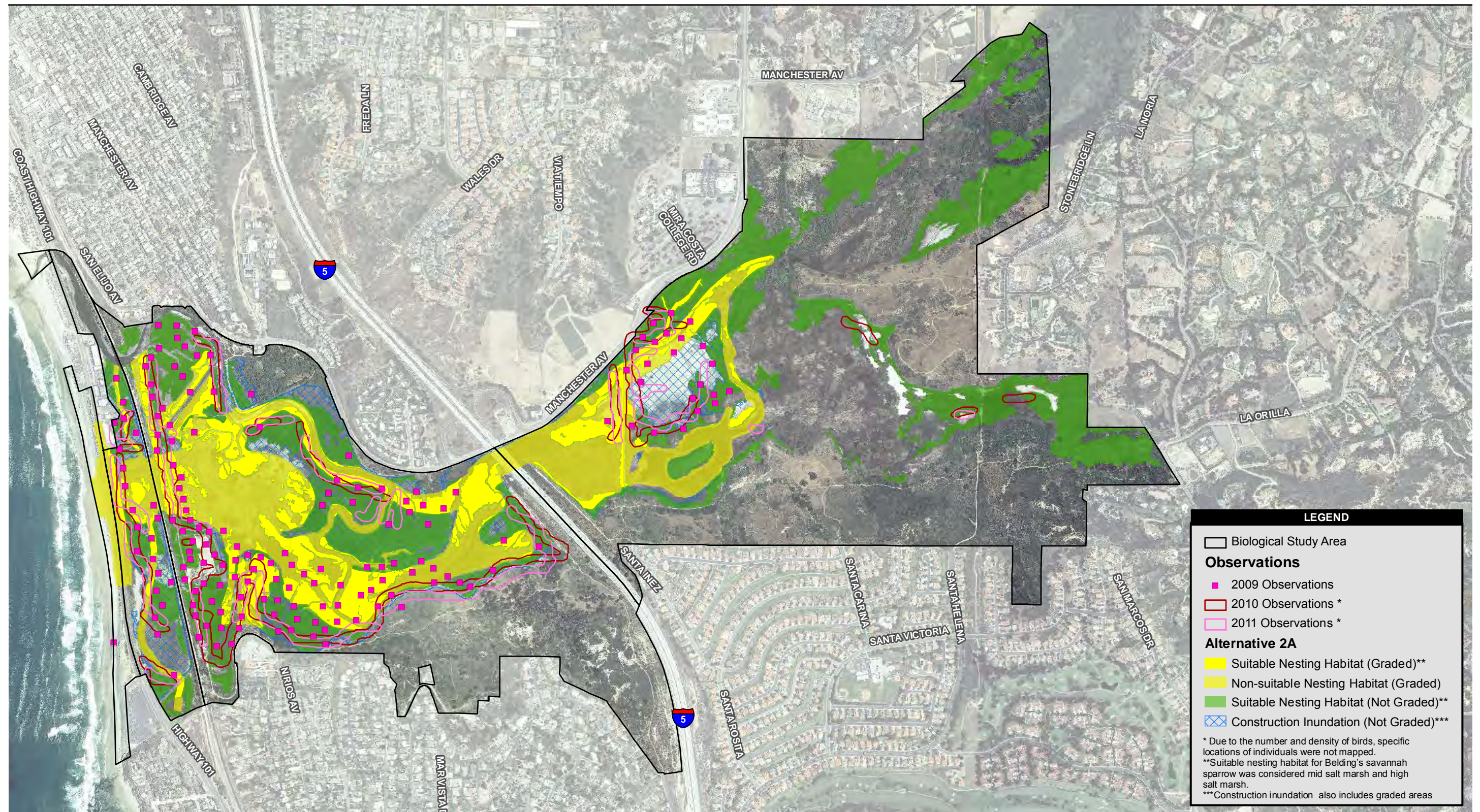
In addition, the project has included the creation of dry and noninundated refugia during Phase 1 and Phase 2 to maximize the potential breeding habitat available during construction. Finally, the project includes a habitat enhancement plan as a design feature that would be developed and implemented prior to and during construction to enhance target locations of unimpacted suitable habitat for Belding's savannah sparrow. The habitat enhancement plan would allow for refugia during construction, when suitable breeding and foraging habitat areas would be reduced. The plan would include measures such as removal of perches that competitor birds (song sparrow) use, removal of non-pickleweed vegetation, and predator control. Belding's savannah sparrow is a year-round resident and project construction would result in the temporary loss of greater than 50 percent of their nesting habitat (mid- and high-salt marsh). This temporary construction impact is considered a significant impact to the local population. **As such, Alternative 2A would have a significant and adverse short-term direct impact on Belding's savannah sparrow.**

#### Light-footed Clapper Rail

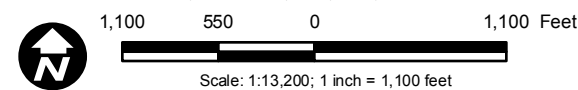
Light-footed clapper rail are year-round residents in the lagoon, nesting in low-marsh and coastal brackish marsh habitat. Alternative 2A would directly impact 40.6 acres (28 percent) of existing suitable nesting habitat through direct grading and controlled inundation (Table 4-3 and Figure 4-3). These direct impacts would affect the low-marsh and brackish marsh habitat that supports this species. The project has proposed design features to minimize impacts to wildlife (birds in particular) that would be associated with dredging and other earthwork. Project design features include the removal of all vegetation outside of the bird breeding season to avoid direct impacts to species and to allow birds the time needed to establish new breeding territories in unimpacted habitat.

In addition, dry and tidal refugia have been included in the project to provide continued breeding opportunities for the species. These wildlife refugia are focused on the west basin and the western portion of the central basin where the clapper rail population is smallest (two pairs in 2013) and, as such, can likely accommodate those individuals. The remaining population





Source: SANDAG 2012; Patton 2010, 2011, 2012; AECOM 2012



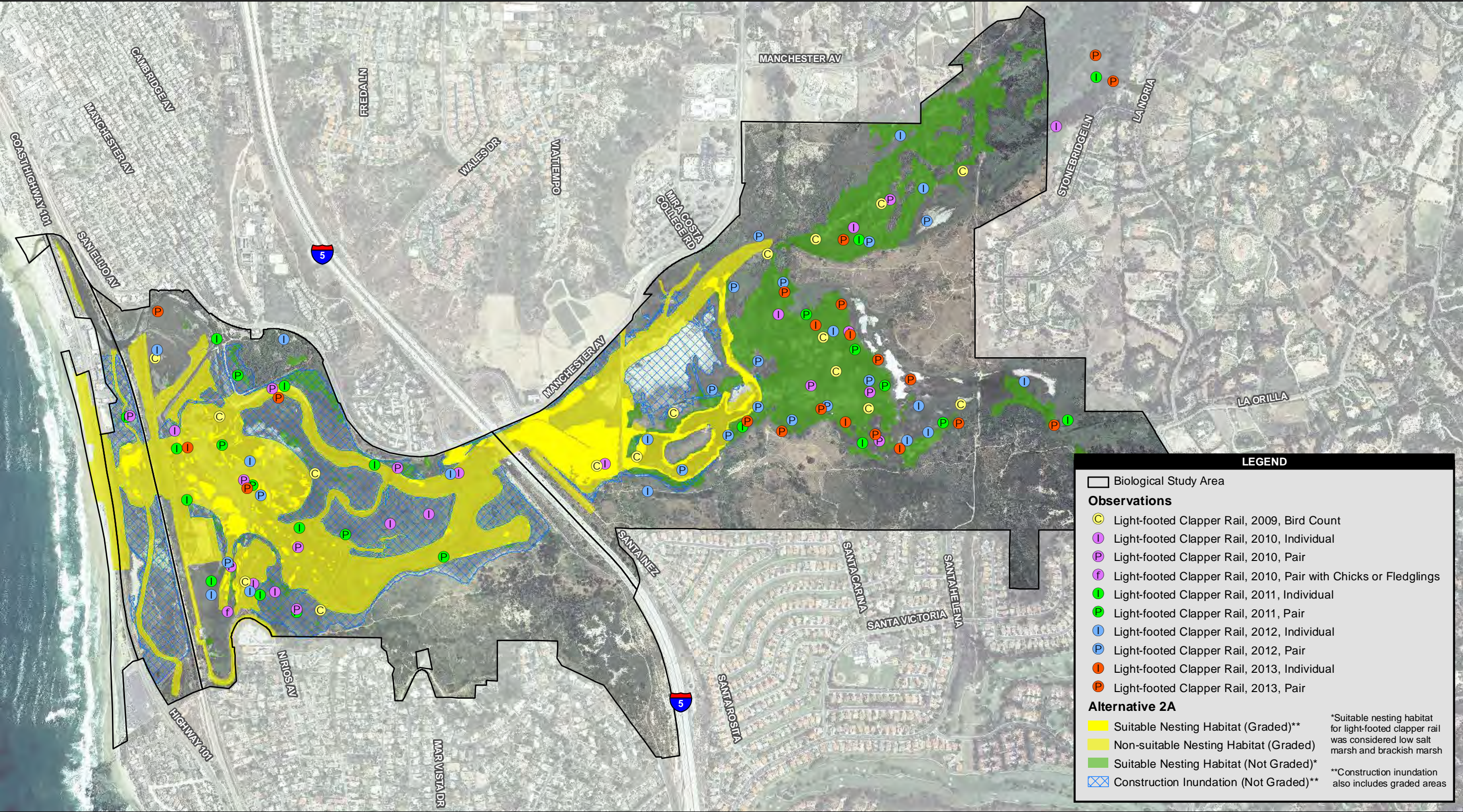
**Figure 4-2**  
**Belding's Savannah Sparrow**  
**Suitable Nesting Habitat Impact Analysis, Alternative 2A**



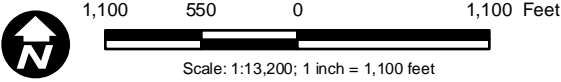
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Source: SANDAG 2012; Zembal 2011, 2012; AECOM 2014



**Figure 4-3**  
**Light-footed Clapper Rail**  
**Suitable Nesting Habitat Impact Analysis, Alternative 2A**



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(18 pairs) is focused in the eastern basin within the brackish marsh, with most of the 2013 observations occurring east of the grading and controlled inundation limits.

The project also includes a design feature to implement a habitat enhancement plan prior to and during construction to enhance target locations of unimpacted habitat that may be suitable for clapper rail with additional management. The habitat enhancement plan would allow for additional refugia during construction when suitable habitat areas would be reduced. The plan would include things such as nesting platforms, focused cordgrass plantings, and fencing, as well as select predator control.

In addition to direct impacts associated with temporary habitat loss, the light-footed clapper rail is a year-round resident in the lagoon and is considered by local experts difficult to flush. Therefore, there is the potential for direct mortality during vegetation removal. In an effort to avoid direct take of this species, the project would take advantage of a natural behavior in which clapper rail move to higher elevations during inundation events. Although light-footed clapper rail can swim, it is not preferred and cannot be sustained for long periods of time. The project would initiate inundation (as described in construction phasing, Section 1.2.3.5) outside of the nesting season and would allow adequate time for clapper rail and other wildlife to move to higher ground along the periphery of the lagoon. Inundation would be maintained for dredging purposes but would also be used to conduct vegetation grubbing and removal to maximize avoidance of clapper rail while they are outside of their preferred habitat. With implementation of project design features and construction monitoring, and because greater than 50 percent of breeding habitat would remain available during construction of the proposed project, short-term direct impacts on light-footed clapper rail are considered less than significant and not substantially adverse.

### Indirect

Indirect short-term/temporary effects to sensitive species may include increases in exposure to predators, degraded water quality, disturbed unconsolidated sediment, and noise.

During construction, and as habitat becomes reestablished on-site, Belding's savannah sparrow and light-footed clapper rail may be exposed to higher predation as they would be more concentrated in the remaining unimpacted habitat, much of which is located along the perimeter of the lagoon. In addition, many of the unimpacted areas considered suitable nesting habitat for these species are not currently used for nesting, indicating this habitat may not be preferred for nesting. To reduce temporary impacts to marsh birds resulting from the indirect effects of the short-term loss of nesting and foraging habitat, the project has included a various design features

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such as preparation and implementation of a habitat enhancement plan and a predator control program, as described above under direct short-term/temporary impacts.

During construction, sensitive birds using the lagoon may be exposed to degraded water quality resulting from dredging and other sediment-disturbing activities. These activities may increase turbidity and the presence of unconsolidated sediments, lowering visibility and making foraging more difficult. The increase in turbidity and unconsolidated sediments, resulting in lowered visibility, would occur relatively close to the active dredge and other construction activities and would dissipate with distance. In addition, after the equipment ceases work in any given area, the material should reconsolidate within a short amount of time (hours if not days). As the dredge is slow moving, impacts would be isolated to discrete areas on any given day, leaving many areas within the working basin still suitable for foraging. In addition, the other basins not under active construction in the phasing scheme would also be available for foraging. Due to the daily isolation and concentration of the impact (immediate proximity to the dredge) and the availability of other foraging habitat, these impacts are not expected to substantially adversely affect sensitive bird species. In addition, the project would implement BMPs to further reduce water quality impacts and the indirect effects to sensitive birds (see Chapter 1.0). With implementation of project design features, short-term/temporary indirect impacts to sensitive species resulting from predation and water quality are considered less than significant and not substantially adverse.

In addition to indirect impacts described above, there is also the potential for short-term indirect noise impacts to sensitive species as a result of construction activities. Existing ambient noise levels at San Elijo Lagoon are considered moderate for a natural setting and are directly related to the numerous transportation corridors that traverse the lagoon. The largest contributors to ambient noise levels are I-5, separating the lagoon's largest two basins, and Highway 101 near the western edge of the lagoon. In addition, Manchester Road borders the northern edge of the lagoon and the railroad separates the west and central basins. Short-term noise measurements ranged from 47.0 to 65.4 A-weighted decibels (dBA)  $L_{eq}$  with corresponding maximum noise levels ranging from 58.2 to 86.7 dBA  $L_{max}$ . The Draft Encinitas General Plan Update (2012) included a model of existing traffic noise contours near the lagoon (excluding the railroad), which is reproduced in the Noise Analysis Section 3.12 of the EIR/EIS. As shown in the model, the highest noise levels are found closest to I-5 and reach 80 dBA CNEL. Noise dissipates exponentially and, as such, the greatest reduction occurs in short distances from the source. The contours illustrate that the quietest areas in the lagoon are located in the middle and eastern portions of the east basin and the southwest corner of the central basin (although the railroad was not included in the contours). Ambient CNEL noise levels do not reach below 60 dBA until the eastern edge of the BSA.

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The addition of construction noise to the lagoon environment has the potential to impact sensitive birds throughout the year. An increase in ambient noise levels could disrupt nesting and breeding behaviors that play an important role in the reproduction of wetland species such as the light-footed clapper rail, Belding's savannah sparrow, western snowy plover, California least tern, least Bell's vireo, southwestern willow flycatcher, and upland species such as the coastal California gnatcatcher. In addition, elevated noise levels have the potential to affect bird foraging behavior during the nonbreeding season. Construction equipment may vary, but it is assumed that the loudest contiguous noise would be generated by dredging activity and the use of diesel engines. For the purposes of the noise analysis, a dredge was assumed using hydraulic engine, which equates to 73 dBA  $L_{eq}$  at 50 feet (see Noise Analysis Section 3.12 of the EIR/EIS). Unlike stationary equipment, the dredge would be mobile in the lagoon and the potential for noise impact would travel with the machinery. Dredging activity would occur up to 24 hours a day for the duration of construction. In addition to dredging, other noise-generating equipment may be used during dry construction. A worst-case equipment usage scenario was developed including two dump trucks, a bulldozer, and a large backhoe resulting in an average noise level of approximately 81 dBA  $L_{eq}$  at 50 feet. It is unlikely that all of the equipment in the worst-case scenario would be used simultaneously or at the same location; however, this is the maximum equipment anticipated for this type of project and allows for a conservative estimate of impacts.

Species that occupy habitat at the lagoon edge, or outside the impact footprint, would be less affected by noise than those species occurring within the impact footprint. These edge species include least Bell's vireo, southwest willow flycatcher, and coastal California gnatcatcher. Sensitive birds, including Belding's savannah sparrow and light-footed clapper rail, currently forage and breed throughout the lagoon and can be found distributed throughout the noise contours where appropriate foraging and nesting habitat occurs. Although the ambient noise levels are high for a natural system and the species have adapted to them, the addition of a dredge and other construction equipment would increase ambient levels. Currently, noise levels for the dredge are estimated at 73 dBA CNEL at 50 feet and 67 dBA CNEL at 100 feet. Other construction equipment may reach maximum noise levels of 80 dBA at 50 feet for most equipment (see Section 3.12), but this equipment is anticipated to be localized to areas that are likely to support dry construction (i.e., along the access road, CDFW dike, utility corridor, and nesting area).

When in proximity to wildlife, the effects of dredge and other construction noise would likely be pronounced and may result in modified foraging or breeding behavior. The greatest impact from noise would occur within the first 200 feet of equipment and would dissipate exponentially with distance. For example, one piece of equipment that generates a maximum noise level of 80 dBA at 50 feet (typically with a usage factor of 40 percent) would attenuate to 60 dBA  $L_{eq}$  240 feet from the source. The noise impact would be more pronounced within the quieter areas of the

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lagoon as opposed to the louder areas near the roads. The dredge is slow moving and construction would occur in one basin at a time; therefore, birds could always relocate to quieter habitat. However relocation during the breeding season is not feasible for nesting birds. Avoiding construction during the breeding season was evaluated as part of the development process for this project, which included participation by all resource agencies. It was determined that avoiding the breeding season would almost double the length of construction and might pose a larger impact to resident marsh birds, including the listed light-footed clapper rail and Belding's savannah sparrow that breed in the lagoon. As such, the contiguous construction phased across basins is the project's best attempt to minimize overall noise impacts to sensitive species.

While birds within a substantial portion of the lagoon are already subject to elevated noise levels associated with the various transportation corridors, there is still a potential for construction noise to negatively impact breeding and foraging behavior. The movement of construction activities and the distribution and mobility of the wildlife make minimizing the effects of noise with attenuating devices virtually impossible. As such, noise effects on sensitive birds are considered significant and adverse.

In addition to noise generated by construction equipment, an increase in noise associated with vehicular traffic may also affect sensitive species. Most of the staging areas and construction traffic routes occur outside of the lagoon environment or on the periphery where ambient noise levels from existing traffic already exist. The one vehicle route that coincides with sensitive birds is the southwest entry point in the central basin where vehicles would enter from North Rios Avenue and travel west into the lagoon. Four coastal California gnatcatchers have been observed along this access route in previous years and are expected to nest in this area. Although implementation of the proposed project would increase the frequency of vehicular traffic along this access route, this is an area already used as a maintenance corridor for the existing pump station, the railroad, and the transmission line. Birds nesting in this area are accustomed to vehicular traffic and as such are not expected to be substantially affected by a minor increase in traffic volume and the associated vehicular noise. Noise impacts to birds from vehicular traffic are therefore considered less than significant and not substantially adverse.

### **Long term**

Direct long-term/permanent effects to sensitive species include the active conversion of nesting and/or foraging habitat to another habitat type, modified lagoon conditions, and long-term maintenance and operation.

As described above, suitable habitat for sensitive species would be changed and/or converted as a result of the proposed restoration project. The direct permanent changes to suitable habitat for



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sensitive species are summarized in Table 4-5. This change may include a direct increase or decrease in the total acreage of a specific habitat type post-restoration. Habitat may be actively converted (graded) or passively converted, i.e. a predictable change resulting from the new hydrology pattern associated with the restoration alternative. Implementing Alternative 2A, tidal hydrology would be extended to the east basin and the lagoon would have a modified high tide line of +4.4 feet National Geodetic Vertical Datum (NGVD), which is higher than the existing high tide line of +3.5 feet NGVD. As a result of the increased tidal expression and the elevated high tide line, areas below the high tide line that are not graded as part of the restoration project may passively convert as a result of increased exposure to salt water and improved freshwater export. These areas are expected to begin conversion immediately post-restoration as a result of exposure to the new tidal regime and the corresponding changes to tidal inundation frequencies. These areas would convert in a predictable manner; therefore, their acreages have been included in the post-project habitat calculations and factored into this discussion regarding long-term permanent direct impacts to sensitive species.

#### Least Bell's Vireo and Southwestern Willow Flycatcher

Both least Bell's vireo and southwestern willow flycatcher utilize riparian habitat on-site for foraging habitat. Both species have been observed in low numbers (less than five in any given year) within the central and east basins, primarily within the southern willow scrub habitat. Neither species has been documented to breed on-site although vocalizing male vireos (three individuals) detected in 2011 may indicate that successful breeding has occurred (Patton 2010, 2012a). Alternative 2A would actively convert (i.e., grade) 4 percent of the southern willow scrub riparian habitat within the lagoon as a result of the expansion of tidal channels in the east basin and widening of tidal channels in the central basin (Table 4-5). As least Bell's vireo use the site primarily for foraging and occur in low numbers, the loss of 4 percent of southern willow scrub riparian habitat is not substantial and would not result in a decline in the local population below self-sustaining levels. Therefore, impacts to least Bell's vireo with project implementation would be less than significant and not substantially adverse.

#### Coastal California Gnatcatcher

Coastal California gnatcatchers are observed along the periphery of San Elijo Lagoon within the sage scrub and chaparral habitats. As part of construction, an access road along the southwest corner of central basin would need to be enhanced (widened) to accommodate construction vehicular traffic. Table 4-5 shows up to 2.54 acres (1 percent) of permanent impacts associated with the project. This includes a buffer around the access road as well as the I-5 North Coast Corridor Project. The access road enhancement is expected to occur within the existing footprint and the small trail that would be expanded to temporarily accommodate construction equipment

**Table 4-5**  
**Alternative 2A Existing and Post-Construction Acreage**  
**of Suitable Habitat for Listed Bird Species**

| Species                   | Habitat Suitability* | Habitat Type              | Existing Habitat Acres | Habitat Acreage Post-Restoration | Net Change in Habitat Acreage Post-Restoration | Percent Change Post-Restoration |
|---------------------------|----------------------|---------------------------|------------------------|----------------------------------|--|---------------------------------|
| light-footed clapper rail | Nesting/Foraging     | Coastal Brackish Marsh    | 131.5                  | 96                               | -35.5  | -27%                            |
|                           |                      | Coastal Salt Marsh – Low  | 13.3                   | 23                               | 9.7  | 73%                             |
|                           |                      | Total Nesting             | 144.8                  | 119                              | -25.8  | -18%                            |
|                           | Foraging             | Mudflats                  | 63.1                   | 102                              | 38.9   | 62%                             |
|                           |                      | Coastal Salt Marsh – Mid  | 141.4                  | 124                              | -17.4  | -12%                            |
|                           |                      | Coastal Salt Marsh – High | 120                    | 107                              | -13  | -11%                            |
|                           |                      | Total Foraging            | 324.5                  | 333                              | 8.5  | 3%                              |
| California least tern     | Nesting              | Saltpan                   | 36.9                   | 17                               | -19.9  | -54%                            |
|                           |                      | Coastal Strand            | 5                      | 5                                | 0  | 0%                              |
|                           |                      | Nesting Area**            | 0                      | 2                                | 2  | 200%                            |
|                           |                      | Total Nesting             | 41.9                   | 24                               | -17.9  | -43%                            |
|                           | Foraging             | Subtidal/Channels         | 40.1                   | 74                               | 33.9   | 85%                             |
|                           |                      | Beach                     | 15                     | 14                               | -1   | -7%                             |
|                           |                      | Total Foraging            | 55.1                   | 88                               | 32.9   | 60%                             |
| western snowy plover      | Nesting              | CDFW dike                 | 0.4                    | 0                                | -0.4   | -100%                           |
|                           |                      | Saltpan                   | 36.9                   | 17                               | -19.9  | -54%                            |
|                           |                      | Coastal Strand            | 5                      | 5                                | 0  | 0%                              |
|                           |                      | Nesting Area**            | 0                      | 2                                | 2  | 200%                            |
|                           |                      | Total Nesting             | 42.3                   | 24                               | -18.3  | -43%                            |
|                           | Foraging             | Mudflats                  | 63.1                   | 102                              | 38.9   | 62%                             |
|                           |                      | Beach                     | 15                     | 14                               | -1   | -7%                             |
|                           |                      | Total Foraging            | 78.1                   | 116                              | 37.9   | 49%                             |

| Species                        | Habitat Suitability* | Habitat Type                        | Existing Habitat Acres | Habitat Acreage Post-Restoration | Net Change in Habitat Acreage Post-Restoration | Percent Change Post-Restoration |
|--------------------------------|----------------------|-------------------------------------|------------------------|----------------------------------|--|---------------------------------|
| coastal California gnatcatcher | Nesting/Foraging     | Diegan Coastal Sage Scrub           | 178.1                  | 175.56                           | -2.54  | -1%                             |
|                                |                      | Diegan Coastal Sage Scrub/Chaparral | 49.3                   | 49.3                             | 0  | 0%                              |
|                                |                      | Coyote Bush Scrub                   | 7.5                    | 7.5                              | -0.02  | 0%                              |
|                                |                      | Total Nesting/Foraging              | 234.9                  | 232.34                           | -2.56  | -1%                             |
| least Bell's vireo             | Nesting/Foraging     | Sandbar Willow Scrub                | 9                      | 9                                | -0.06  | -1%                             |
|                                |                      | Southern Willow Scrub               | 61.4                   | 58.8                             | -2.6   | -4%                             |
|                                |                      | Total Nesting/Foraging              | 70.4                   | 67.74                            | -2.66  | -4%                             |
| southwestern willow flycatcher | Nesting/Foraging     | Southern Willow Scrub               | 61.4                   | 58.8                             | -2.6   | -4%                             |
|                                |                      | Total Nesting/Foraging              | 61.4                   | 58.8                             | -2.6   | -4%                             |
| Belding's savannah sparrow     | Nesting              | Coastal Salt Marsh – Mid            | 141.4                  | 124                              | -17.4  | -12%                            |
|                                |                      | Coastal Salt Marsh – High           | 120                    | 107                              | -13  | -11%                            |
|                                |                      | Total Nesting                       | 261.4                  | 231                              | -30.4  | -12%                            |
|                                | Foraging             | Coastal Salt Marsh – Low            | 13.3                   | 23                               | 9.7  | 73%                             |
|                                |                      | Total Foraging                      | 13.3                   | 23                               | 9.7  | 73%                             |

CDFW = California Department of Fish and Wildlife

\*Nesting habitat is considered suitable for both breeding and foraging activities, while habitat identified as "Foraging" is not expected to support breeding activities.

\*\*Under existing conditions, a portion of the nesting area is classified as saltpan.

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would be restored following construction. The impacts associated with the I-5 North Coast Corridor Project are evaluated and mitigated under a separate EIR/EIS (Caltrans 2012). As such, no direct impacts would occur to occupied gnatcatcher habitat.

However, in an effort to be conservative regarding long-term permanent impacts, the project evaluated the potential to impact occupied coastal sage scrub habitat along the access road off of North Rios Avenue. Over the last 5 years, up to two coastal California gnatcatcher territories were located annually within the vicinity of the road improvements area. Although coastal California gnatcatcher often occupy the same territory over consecutive years, their territories fluctuate in size and nesting often occurs throughout that territory. Any vegetation removal that would occur for the road enhancement could be narrow and linear (parallel to the existing access road). As such, impacts to any existing gnatcatcher territories would occur along the margin of the territory and would not result in the entire loss of any territories. Therefore, future nesting in this area is expected to continue following widening of the access road. The acreage associated with the access road improvements (up to 0.7 acre) in addition to the other direct impacts associated with the larger restoration effort (1.8 acres) is the equivalent of 1 percent of the suitable nesting habitat for coastal California gnatcatcher. Impacts associated with the loss of 1 percent of suitable habitat are not considered substantial and would not result in a decline in the local population below self-sustaining levels. Therefore, impacts to coastal California gnatcatcher with project implementation would be less than significant and not substantially adverse.

#### California Least Tern and Western Snowy Plover

Both California least tern and western snowy plover are documented annually foraging and roosting at San Elijo Lagoon. Historically, both species nested on-site; however, neither species has successfully nested on-site since 2002 (Patton 2010). Ideal nesting sites for each species are similar, consisting of undisturbed, sparsely vegetated, flat areas with loose, sandy substrate. Potential nesting habitat for these species within the lagoon includes the saltpan, coastal strand, and the CDFW dike. Alternative 2A would permanently decrease suitable nesting habitat for California least tern by 6.8 acres (16.1 percent of suitable nesting habitat) and decrease suitable nesting habitat for western snowy plover by 7.2 acres (16.9 percent of suitable nesting habitat). As neither species currently breeds on-site, the loss of nesting habitat does not substantially affect either species.

Following restoration, both species are expected to benefit from the restoration of the lagoon. Foraging habitat for both species would increase, with an 85 percent increase in open water and subtidal channels used by California least tern and a 62 percent increase in mudflat used by light-footed clapper rail. The condition of foraging habitat is also expected to improve as a result of



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restoration due to tidal influx and improved benthic community. The improved tidal circulation and restoration to appropriate habitat elevations would enhance environmental conditions for the prey communities that both birds feed on. The regular influx of tidal waters is expected to deliver larvae to the site, which may in turn increase densities and species richness of the benthic community. This directly benefits western snowy plover in addition to other foraging birds. Similarly, tidal circulation would improve environmental conditions for the fish community, which would benefit least tern and other diving birds. The restoration project would directly benefit these species that regularly use the lagoon for foraging and roosting, by increasing foraging habitat in both quantity and quality. As such, no significant or substantially adverse impacts would result with project implementation.

### Belding's Savannah Sparrow

As depicted in Table 4-5, Alternative 2A would reduce available nesting habitat for Belding's savannah sparrow by 30.4 acres, which equates to a loss of 11 percent compared to existing conditions. The greatest reduction is within the central basin, where mid-marsh is being replaced with mudflat and low-marsh habitat. Based on best professional judgment, trends observed in other lagoon restoration projects, and long-term species monitoring programs, Belding's savannah sparrow territory size and density are highly variable and often reflect environmental conditions (Zembal and Hoffman 1988). In extreme wet and dry years when habitat is unsuitable for nesting, territory size may be substantially smaller than in moderate years when more area is suitable. Similarly, when restoration efforts at Bolsa Chica reduced available nesting habitat but improved the quality of the available habitat, the population increased and territory sizes reduced, resulting in higher densities in remaining habitat (Merkel and Associates 2009). Based on this information, the reduction in nesting habitat for Alternative 2A would not result in a decline in the local population below self-sustaining levels.

In addition, the changes to lagoon hydrology would increase the condition of the remaining foraging and nesting habitat suitable for Belding's savannah sparrow. Under current conditions, the frequency and duration of soil saturation in high-marsh habitat are highly variable and often affected by late season rains and ponding. This results in large fluctuations in the Belding's savannah sparrow population and nesting success each year, as they can only nest on dry soil. Improved hydrology would enhance tidal flushing and freshwater export, which would facilitate the drying of high-marsh habitat used for ground nesting. In addition, restoring tidal flushing and salt water exposure to the existing salt marsh habitat in the northeast portion of the lagoon may also improve habitat structure. Although these areas support pickleweed, they are dominated by other native salt marsh species. The presence of these other native salt marsh species makes these areas less preferable for nesting as compared to the dense pickleweed habitat found within the central basin and the western end of the east basin. While the project would result in an overall

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reduction in available nesting habitat of 11 percent, the improved conditions for the remaining 231 acres (89 percent) of mid- and high-marsh habitat resulting from the restoration as well as the improved lagoon condition outweigh the impact associated with the numeric loss of habitat acreage. The project would ultimately benefit the Belding's savannah sparrow population at San Elijo Lagoon and impacts are considered less than significant and not substantially adverse.

### Light-footed Clapper Rail

Light-footed clapper rail nesting and foraging habitat would be modified as part of this alternative. Post-restoration, there would be a net loss of nesting habitat acreage for light-footed clapper rail by 24.8 acres, which equates to a loss of 18 percent when compared to existing conditions. The greatest reduction would be within the east basin, where brackish marsh would be replaced by subtidal and low-marsh habitat. Although brackish marsh would be reduced, the preferred habitat of clapper rail is low-marsh, which is currently limited in the lagoon. Alternative 2A would result in an increase in low-marsh from the current 13.3 acres to 23 acres.

It should be noted that, although the No Project/No Federal Action Alternative is analyzed separately, low-marsh habitat is expected to continue to expand under existing conditions. This is a result of the now regular maintenance of the lagoon mouth and the artificially established mudflat that currently exists at an unsustainable higher elevation. When the lagoon reaches an equilibrium state, it is predicted that low-marsh would increase to 51 acres compared to existing conditions (13 acres) while brackish marsh would remain unchanged. Although habitat acreage is important to consider when assessing project impacts, it is also important to consider the condition of the impacted habitat. The current and potential future low-marsh habitat occupied by light-footed clapper rail is denoted under existing conditions by the overall poor conditions of the lagoon resulting from poor tidal flushing and these less than optimal conditions would continue without restoration. The increase in low-marsh habitat expected at equilibrium would be directly correlated to the net loss of mudflat acreage (63 acres in 2012 versus 29 acres at equilibrium), which is critical foraging habitat for the year-round resident light-footed clapper rail, as well as other foraging birds.

Under Alternative 2A, the expansion of the low-marsh habitat (compared to existing conditions) for light-footed clapper rail would occur in the central and east basins. In addition to affecting habitat acreage, the changes to lagoon hydrology under the alternative would also improve the condition of the remaining foraging and nesting habitat for light-footed clapper rail. Under current conditions, much of the brackish marsh in the east lagoon is inundated with standing, potentially stagnant, water and the low-marsh habitat is occupying nutrient-laden sediment that often experiences periods of anoxia. The extension of the tidal prism farther east, in addition to the improved tidal flushing and freshwater export, is expected to enhance the condition of the

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remaining brackish marsh. Foraging habitat would also be affected by Alternative 2A with a small net increase in acreage but a larger increase in condition. Clapper rail forage within their nesting habitat in addition to mudflats, mid-marsh, and high-marsh habitats. The regular influx of tidal waters and proper tidal flushing are expected to enhance the benthic community in all foraging habitats, but in particular mudflats. The improved conditions for nesting and foraging habitat outweigh the loss of habitat acreage. The net loss of nesting habitat is considered an impact; however, the reduction in nesting habitat would not substantially affect the sustainability of the clapper rail population within the lagoon. Ultimately, the project is expected to benefit light-footed clapper rail populations at San Elijo Lagoon. Therefore, impacts to light-footed clapper rail with implementation of Alternative 2A are considered less than significant and not substantially adverse.

As part of the restoration project, there would be long-term monitoring and maintenance. This may include, but is not limited to, biological monitoring, nonnative species treatment, isolated regrading or recontouring, and other adaptive management strategies. Although each of these actions is intended to enhance the success of the restoration effort, there is the potential for impacts to sensitive birds in the lagoon. To minimize impacts, the project would prepare an adaptive management, maintenance, monitoring program that would include avoidance measures to minimize impacts to sensitive wildlife on-site. As such, long-term monitoring and maintenance activities are not expected to have a substantial effect on any sensitive species and impacts are considered less than significant and not substantially adverse.

With implementation of project design features and the net benefits of the restoration project, permanent direct impacts to sensitive species from active conversion of nesting and/or foraging habitat, modified lagoon conditions, and long-term maintenance and operation are considered less than significant and not substantially adverse.

### Indirect

Indirect long-term/permanent effects include the passive transition of nesting and/or foraging habitat to another habitat type, increased potential for invasive species, and changes to water quality.

Habitat above the high tide line, within the transitional area, may passively transition (change) over a long period of time. The transitional area is considered to begin at the high tide line and extend up to 2+ feet above the high tide line. For Alternative 2A, this area is found between +4.4 feet NGVD and +6.4 feet NGVD. Transitional areas provide opportunity for refugia to estuarine-dependent wildlife during extreme high tides and periods of extensive lagoon inundation. As a result of this project, the transitional area would include man-made and existing natural areas.

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Passive transition of habitat within the new natural transitional area is possible although unpredictable. In particular, these areas are important for Belding's savannah sparrow and light-footed clapper rail as these species are year-round residents that occupy lower elevation marsh habitat that is regularly affected by tides. In addition, light-footed clapper rail currently occupies and nests in a large portion of brackish marsh in the east basin that would occur within the new natural transitional area. Over time, this area may change from brackish marsh to salt marsh habitat. Although the change in habitat is unpredictable in the transitional area, the connection to tidal hydrology and the improved freshwater export is expected to ultimately enhance the condition of the existing habitat within the east basin transitional area. In addition, any impacts to sensitive species resulting from changes to the new transitional area are not considered substantial.

It is possible that reduced periods of saturation and increased salinity may make transitional areas in the east basin more prone to invasion by nonnative species. In particular, areas going through a transition from one habitat type to another may have an increased percentage of bare ground as species die and new recruits arrive. Of particular concern is the salt tolerant *Tamarix* spp. (tamarisk or salt cedar), which can be highly invasive in estuarine systems and preclude native plant community development. Nonnative invasive species have the potential to exclude native plant recruits and ultimately shape the vegetation community to something less than suitable for estuarine wildlife, including the Belding's savannah sparrow and light-footed clapper rail. As part of the post-construction habitat monitoring and maintenance program for this project, the occurrence of these invasive species would be closely monitored as well as the potential die-off of emergent vegetation (i.e., cattails) in the east basin. Future maintenance would regularly treat invasive species to limit the possibility of invasion. Indirect impacts to sensitive species resulting from invasive species are not considered substantial.

Indirect changes to lagoon conditions are expected as a result of restoration and the corresponding improvement to tidal hydrology (i.e., circulation, turnover, freshwater export, etc.). Although not quantifiable, these changes are associated with a properly functioning lagoon system with a predominantly open mouth. In particular changes to water quality are expected including increased oxygenation, reduced or eliminated periods of anoxic conditions, and water temperature regulation. These improvements to water quality and overall lagoon conditions are expected to directly and indirectly benefit sensitive species on-site. The improved conditions would likely result in increased food web complexity, including improvements to the terrestrial insect population, the benthic invertebrate population, and the subtidal fish population. All of these communities are primary food sources for various sensitive species and others residing in the lagoon. The indirect improvement to water quality would benefit sensitive species.



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With implementation of project design features and the net benefits of the restoration project, indirect permanent impacts to sensitive species from passive transition of nesting and/or foraging habitat and invasive species are considered less than significant and not substantially adverse.

### **Nonlisted Special-status Wildlife Species**

Of the 98 special-status wildlife species with potential to occur within the BSA, 87 are nonlisted (CDFG 2011; BioBlitz 2009; Patton 2010; SELC 2011; MEC 2002). Table 3-5 provides a summary of the special-status species known or potentially occurring with the BSA.

#### **Resident/Breeding Species**

Forty-five (45) nonlisted wildlife species are considered residents within the BSA or the BSA supports suitable breeding habitat for these species. Of those 45 species, 13 nonlisted special-status wildlife species were detected during previous studies within the BSA (CDFW 2011; BioBlitz 2009; Patton 2010; SELC 2011; MEC 2002). Each of these species and their potential use of the lagoon are described above.

#### **Invertebrates**

- wandering (salt marsh) skipper, *Panoquina errans*

#### **Reptiles and Amphibians**

- orange-throated whiptail, *Aspidoscelis hyperythra beldingi*
- silvery legless lizard, *Anniella pulchra pulchra*

#### **Birds**

- Cooper's hawk, *Accipiter cooperi*
- northern harrier, *Circus cyaneus*
- osprey, *Pandion haliaetus*
- western bluebird, *Sialia Mexicana*
- white-tailed kite, *Elanus leucurus majusculus*
- yellow warbler, *Dendroica petechia brewsteri*
- yellow-breasted chat, *Icteria virens*

#### **Mammals**

- California (western) mastiff bat, *Eumops perotis californicus*
- western red bat, *Lasiurus blossevillii*
- southern mule deer, *Odocoileus hemionus fuliginata*

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In addition the following 32 nonlisted special-status species have the potential to occur and breed in the BSA but were not detected during historic survey.

#### Invertebrates

- western beach tiger beetle, *Cicindela latesignata latesignata* (moderate potential)
- globose dune beetle, *Coelus globosus* (moderate potential)
- sandy beach tiger beetle, *Cicindela hirticollis gravid* (moderate potential)

#### Reptiles and Amphibians

- western spadefoot toad, *Spea* (*Sacphiopus*) *hammondii* (high potential)
- southwestern pond turtle, *Actinemys marmorata pallid* (moderate potential)
- San Diego coast horned lizard, *Phrynosoma coronatum* (*blainvillei*) (high potential)
- Coronado skink, *Eumeces skitonianus interparietalis* (high potential)
- coast patch-nosed snake, *Salvadora hexalepis virgultea* (moderate potential)
- two-striped gartersnake, *Thamnophis hammondii* (high potential)
- red-diamond rattlesnake, *Crotalus ruber ruber* (moderate potential)

#### Birds

- Redhead, *Aythya Americana* (moderate potential)
- least bittern, *Ixobrychus exilis* (moderate potential)
- burrowing owl, *Athene cunicularia* (low potential)
- long-eared owl, *Asio otus* (low potential)
- loggerhead shrike, *Lanius ludovicianus* (moderate potential)
- California horned lark, *Eremophila alpestris actia* (low potential)
- coastal cactus wren, *Campylorhynchus brunneicapillus couesi* (low potential)
- southern California rufous-crowned sparrow, *Aimophila ruficeps canescens* (moderate potential)
- Bell's sage sparrow, *Amphispiza belli belli* (moderate potential)
- grasshopper sparrow, *Ammodramus savannarum perpallidus* (low potential)

#### Mammals

- Mexican long-tongued bat, *Choeronycteris mexicana*
- pocketed free-tailed bat, *Nyctinomops femorosaccus*
- pallid bat, *Antrozous pallidus*
- Townsend's (western) big-eared bat, *Corynorhinus townsendii pallescens*
- San Diego black-tailed jackrabbit, *Lepus californicus bennettii*
- Dulzura California pocket mouse, *Chaetodipus californicus femoralis*
- northwestern San Diego pocket mouse, *Chaetodipus fallax fallax*
- southern grasshopper mouse, *Onychomys torridus Ramona*
- Pacific pocket mouse, *Perognathus longimembris pacificus*

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- San Diego desert woodrat, *Neotoma lepida intermedia*
  - American badger, *Taxidea taxus*
  - mountain lion, *Felis concolor*

Impacts to the 45 nonlisted resident wildlife species described above may include the direct loss of individuals as well as the short-term loss of habitat from grading and inundation. Although these species are considered residents of the lagoon, the majority will breed in areas outside the grading and inundation zone as they are associated with upland habitats. A few species may use habitats within the impact footprint, including western beach tiger beetle and wandering (saltmarsh) skipper, which are both associated with salt marshes, as well as the redhead and least bittern, which breed in brackish marsh. The short-term loss of habitat is addressed above. The project includes various design features to minimize impacts to sensitive species, including resident fauna that may breed on-site (Table 1-5). Design features that would minimize impacts to resident species include the use of biological monitors, vegetation removal outside of the breeding season, and controlled inundation to help encourage movement to outside the impact area. In addition, project impacts would be phased across the lagoon so that at any given time continued foraging and breeding habitat would be available to nonlisted wildlife species. Impacts to resident/breeding species are not expected to result in the decline of any species below self-sustaining levels; impacts are considered less than significant and not substantially adverse. No long-term impacts to migratory and nonresident wildlife species are expected as the restoration project and the corresponding improvements to ecological conditions are considered beneficial to all 45 species.

#### Nonresident/Migratory Species

The following 43 nonlisted special-status species are considered migrants/nonbreeding season residents and/or where the BSA does not contain suitable breeding habitat. Of these the following 15 were detected during historical surveys.

- brant, *Branta bernicla*
- common loon, *Gavia immer*
- double-crested cormorant, *Phalacrocorax auritus*
- American white pelican, *Pelecanus erythrorhynchos*
- California brown pelican, *Pelecanus occidentalis californicus*
- white faced ibis, *Plegadis chihi*
- long-billed curlew, *Numenius americanus*
- California gull, *Larus californicus*
- elegant tern, *Sterna elegans*
- black skimmer, *Rynchops niger*

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- sharp-shinned hawk, *Accipiter striatus*
  - merlin, *Falco columbarius*
  - American peregrine falcon, *Falco peregrinus anatum*
  - Vaux's swift, *Chaetura vauxi*
  - olive-sided flycatcher, *Contopis cooperi*

The following 28 nonlisted special-status species including one bat, were not detected during historical surveys but have the potential to occur within the BSA.

#### Birds

- fork-tailed storm-petrel, *Oceanodroma furcate*
- black storm-petrel, *Oceanodroma melania*
- wood stork, *Mycerterua anerucana*
- sandhill crane, *Crus Canadensis*
- laughing gull, *Larus atricilla*
- gull-billed tern, *Gelochelidon nilotica*
- black tern, *Childonias niger*
- black rail, *Laterallus jameicensis coturniculus*
- Cassin's auklet, *Ptychoramphus aleuticus*
- Xantu's murrelet, *Synthliboramphus hypoleucus*
- rhinoceros auklet, *Cerorhinca monocerata*
- ferruginous hawk, *Buteo regalis*
- golden eagle, *Aquila chrysaetos*
- bald eagle, *Haliaeetus leucocephalus*
- prairie falcon, *Falco mexicanus*
- short-eared owl, *Asio flammeus*
- black swift, *Cypseloides niger*
- Vermilion flycatcher, *Pyrocephalus rubinus*
- gray vireo, *Vireo vicinior*
- purple martin, *Progene subis*
- bank swallow, *Riparia riparia*
- Bendire's thrasher, *Toxostoma bendirei*
- Virginia's warbler, *Vermivora virginiae*
- large-billed savannah sparrow, *Passerculus sandwichensis rostratus*
- summer tanager, *Piranga rubra*
- tricolored blackbird, *Agelaius tricolor*
- yellow-headed blackbird, *Xanthocephalus xanthocephalus*



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## Mammal

- Townsend's (western) big-eared bat, *Corynorhinus townsendii pallescens*

The project includes various design features that would facilitate avoidance of migratory species including use of biological monitors and vegetation removal outside of the breeding season, and with the aid of controlled inundation (Table 1-5). As impacts would be phased across the lagoon, foraging habitat would remain in other areas at any given time so that migratory species would continue to have access to the lagoon as a whole during construction. Short-term impacts to migratory and nonresident species are considered less than significant and not substantially adverse. No long-term impacts to migratory and nonresident wildlife species are expected as the restoration project and the corresponding improvements to ecological conditions are considered beneficial to all 43 species.

### **4.2.4 Wildlife Corridors/Connectivity**

As described in Section 3.6, San Elijo Lagoon is not functioning as a regional corridor. Instead, it is a large area of natural open space connected to Escondido Creek. Escondido Creek links San Elijo Lagoon with other open space habitat in Harmony Grove and the Elfin Forest to the northeast. San Elijo Lagoon is an important natural open space that provides a large area of habitat for core populations of sensitive wildlife and plant species. Alternative 2A would result in temporary and short-term impacts to wildlife movement throughout the lagoon during grading, dredging, and controlled inundation operations. However, construction would be phased and occur within discrete locations at discrete timeframes within the lagoon basins, thereby allowing for wildlife movement within adjacent habitat at any given time during construction.

No long-term impacts are anticipated. The project area would still function as a large area of natural open space that would allow for wildlife movement similar to existing conditions. Therefore, no significant or substantially adverse short-term or long-term impacts to wildlife movement/connectivity are anticipated with implementation of Alternative 2A.

### **4.2.5 Local Ordinances/Policies/Adopted Plans**

The project would be required to be consistent with Regional Conservation Plans. Two regional planning documents cover the Lagoon BSA, the draft North County MSCP (County of San Diego 2009) and the North County MHCP (AMEC et al. 2003). The North County MSCP is a draft and expands the County MSCP into the northwestern unincorporated areas of San Diego County. The portions of the lagoon owned by the County of San Diego (primarily the east basin) are within the North County MSCP. Portions of the BSA are within conservation areas referred to as the Preserve Area and Pre-Approved Mitigation Area under the draft North County MSCP

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(County of San Diego 2009). The majority of the central and west basins are covered in the MHCP. Both documents allow for restoration of preserve areas. Specifically, the MHCP and the North County MSCP acknowledge the intent for restoration of San Elijo Lagoon (see North County MSCP Section 8.16 and MHCP Section 6.3.5). All restoration, maintenance, and monitoring plans prepared for SELRP Alternative 2A would be prepared in accordance with the goals of these regional conservation plans, and in consultation with the wildlife agencies. The project is consistent with the goals and objectives of both the MHCP and draft North County MSCP. Therefore, no significant or substantially adverse impact would result with implementation of Alternative 2A.

### **4.3 ALTERNATIVE 1B**

The following section evaluates direct and indirect impacts, as well as permanent and temporary impacts to biological resources associated with Alternative 1B. Where impacts are similar or less than Alternative 2A, minimal discussion is provided. However, if the impact is unique to this alternative or notably different than Alternative 2A, then further discussion is provided.

#### **4.3.1 Sensitive Riparian and Natural Vegetation Communities**

##### **Short-term**

Construction of Alternative 1B would, similar to Alternative 2A, result in temporary or short-term impacts to sensitive habitats associated with grading and dredging operations. The project is anticipated to take approximately 3 years to construct and would be phased to minimize impacts to the lagoon habitats, allowing for refuge and retaining some available habitats at any given time during construction. Inundation durations would be similar to 2A, as areas proposed for inundation would be inundated for 3 months or longer. Therefore, it is assumed that this vegetation would be substantially impacted; as a worst case scenario, it is assumed that vegetation in inundated areas would not survive (i.e., habitat would be lost for more than 12 months). The Adaptive Management Program for the project, as described in Chapter 1.2.3.5, includes measures for monitoring and maintenance activities to aid in the recovery of inundated vegetation communities.

Impacts are summarized by basin in Table 4-6 and for the entire BSA in Table 4-7. Impacts are separated into two types of short-term impacts: areas that would be graded/dredged during construction and areas that would be affected by inundation only. Impacts associated with Alternative 1B would be similar to the impacts from Alternative 2A, while there would be slightly reduced grading/dredging impacts and slightly greater inundation impacts. Overall, impacts to the lagoon

**Table 4-6**  
**Direct Project Impacts from Construction of Alternative 1B by Basin**

| <b>Basin/Habitat Community</b>      | <b>Existing Vegetation (acres) within the BSA</b> | <b>Alternative 1B Direct Impacts from Dredging/Grading (acres)</b> | <b>Alternative 1B Direct Impacts from Inundation</b> | <b>Habitat Temporarily Impacted (% in BSA)</b> |
|-------------------------------------|---|--|--|--|
| <b>Central Basin</b>                |   |  |  |  |
| Coastal Brackish Marsh              | 6.1   | 1.7  | 3.6  | 87%  |
| Coastal Salt Marsh – High           | 0.7   | 0.7  | 0.0  | 100%   |
| Coastal Salt Marsh – Low            | 11.8  | 6.1  | 4.6  | 91%  |
| Coastal Salt Marsh – Mid            | 121.3   | 46.1   | 55.5   | 84%  |
| Developed                           | 10.4  | 3.5  | 0.0  | 34%  |
| Diegan Coastal Sage Scrub           | 67.0  | 2.8  | 0.5  | 5%   |
| Diegan Coastal Sage Scrub/Chaparral | 27.7  | 0.0  | 0.0  | 0%   |
| Disturbed Habitat                   | 6.7   | 2.1  | 0.0  | 31%  |
| Eucalyptus Woodland                 | 15.7  | 0.0  | 0.1  | 1%   |
| Open Water                          | 23.7  | 18.2   | 2.6  | 88%  |
| Saltpan/Open Water                  | 1.5   | 1.5  | 0.0  | 100%   |
| Southern Willow Scrub               | 14.4  | 0.7  | 2.1  | 19%  |
| Tidal Mud Flat                      | 49.3  | 29.1   | 14.9   | 89%  |
| <b>Total for Central Basin</b>      | <b>356.3</b>                                      | <b>112.0</b>   | 83.8   | 55%  |
| <b>Coastal Area</b>                 |   |  |  |  |
| Beach                               | 15.0  | 2.1  | 0  | 14%  |
| Developed                           | 3.0   | 0.1  | 0  | 3%   |
| Open Water                          | 1.5   | <b>0.1</b>   | <b>0</b>   | 7%   |
| <b>Total for Coastal Area</b>       | <b>19.5</b>                                       | <b>2.3</b>   | <b>0</b>   | 12%  |
| <b>East Basin</b>                   |   |  |  |  |
| Coastal Brackish Marsh              | 125.4   | 22.2   | 0.6  | 18%  |
| Coastal Salt Marsh – High           | 118.5   | 11.7   | 2.6  | 12%  |
| Coastal Salt Marsh – Mid            | 3.4   | 2.3  | 1.1  | 100%   |
| Coyote Bush Scrub                   | 7.5   | 0.0  | 0  | 0%   |
| Developed                           | 4.9   | 0.9  | 0  | 18%  |
| Diegan Coastal Sage Scrub           | 108.1   | 1.5  | 0  | 1%   |
| Diegan Coastal Sage Scrub/Chaparral | 21.6  | 0.0  | 0  | 0%   |
| Disturbed Habitat                   | 2.6   | 0.4  | 0.2  | 23%  |
| Disturbed Wetland                   | 1.1   | 0.0  | 0  | 0%   |
| Eucalyptus Woodland                 | 3.4   | 0.0  | 0  | 0%   |
| Nonnative Grassland                 | 33.1  | 0.0  | 0  | 0%   |
| Open Water                          | 10.6  | 9.5  | 0.1  | 91%  |
| Saltpan/Open Water                  | 35.4  | 5.1  | 13.7   | 53%  |
| Sandbar Willow Scrub                | 8.9   | 0.0  | 0  | 0%   |
| Southern Willow Scrub               | 46.9  | 2.2  | 0.1  | 5%   |
| <b>Total for East Basin</b>         | <b>531.5</b>                                      | <b>55.9</b>  | <b>18.5</b>  | 14%  |
| <b>West Basin</b>                   |   |  |  |  |
| Coastal Salt Marsh – High           | 0.8   | 0.1  | 0.7  | 100%   |

| <b>Basin/Habitat Community</b> | <b>Existing Vegetation (acres) within the BSA</b> | <b>Alternative 1B Direct Impacts from Dredging/Grading (acres)</b> | <b>Alternative 1B Direct Impacts from Inundation</b> | <b>Habitat Temporarily Impacted (% in BSA)</b> |
|--------------------------------|---|--|--|--|
| Coastal Salt Marsh – Low       | 1.5   | 0.3  | 1.2  | 100%   |
| Coastal Salt Marsh – Mid       | 16.7  | 2.3  | 12.6   | 89%  |
| Coastal Strand                 | 5.0   | 0.0  | 1.4  | 28%  |
| Developed                      | 5.2   | 0.2  | 0  | 4%   |
| Diegan Coastal Sage Scrub      | 3.1   | 0.3  | 0.2  | 16%  |
| Disturbed Habitat              | 2.5   | 0.3  | 0.6  | 36%  |
| Open Water                     | 4.3   | 3.7  | 0.3  | 93%  |
| Tidal Mud Flat                 | 13.8  | 3.0  | 10.3   | 96%  |
| <b>Total for West Basin</b>    | <b>52.9</b>                                       | <b>10.0</b>  | <b>27.4</b>  | <b>71%</b>                                     |
| <b>TOTAL</b>                   | <b>960.2</b>                                      | <b>181.9</b>   | <b>129.8</b>   | <b>32%</b>                                     |

BSA = Biological Study Area

**Table 4-7**  
**Direct Project Impacts from Construction of Alternative 1B**

| <b>Basin/Habitat Community</b>      | <b>Existing Vegetation (acres) within the BSA</b> | <b>Alternative 1B Direct Impacts from Dredging/Grading (acres)</b> | <b>Alternative 1B Direct Impacts from Inundation</b> | <b>Habitat Temporarily Impacted (% in BSA)</b> |
|-------------------------------------|---|--|--|--|
| Beach                               | 15.0  | 2.1  | 0  | 14%  |
| Coastal Brackish Marsh              | 131.5   | 23.9   | 4.2  | 21%  |
| Coastal Salt Marsh – High           | 120.0   | 12.5   | 3.3  | 13%  |
| Coastal Salt Marsh – Low            | 13.3  | 6.4  | 5.8  | 92%  |
| Coastal Salt Marsh – Mid            | 141.4   | 50.6   | 69.2   | 85%  |
| Coastal Strand                      | 5.0   | 0  | 1.4  | 28%  |
| Coyote Bush Scrub                   | 7.5   | 0  | 0  | 0%   |
| Developed                           | 23.4  | 6.0  | 0.1  | 26%  |
| Diegan Coastal Sage Scrub           | 178.2   | 4.5  | 0.7  | 3%   |
| Diegan Coastal Sage Scrub/Chaparral | 49.3  | 0  | 0  | 0%   |
| Disturbed Habitat                   | 11.9  | 2.9  | 0.8  | 31%  |
| Disturbed Wetland                   | 1.1   | 0  | 0  | 0%   |
| Eucalyptus Woodland                 | 19.1  | 0  | 0.1  | 1%   |
| Nonnative Grassland                 | 33.1  | 0  | 0  | 0%   |
| Open Water                          | 40.1  | 31.5   | 3.0  | 86%  |
| Saltpan/Open Water                  | 37.0  | 6.6  | 13.7   | 55%  |
| Sandbar Willow Scrub                | 8.9   | 0  | 0  | 0%   |
| Southern Willow Scrub               | 61.3  | 2.9  | 2.2  | 8%   |
| Tidal Mud Flat/Open Water           | 63.1  | 32.0   | 25.2   | 91%  |
| <b>Total</b>                        | <b>960.2</b>                                      | <b>181.9</b>   | <b>129.7</b>   | <b>32%</b>                                     |

BSA = Biological Study Area



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are similar with approximately 32 percent of the lagoon impacted by restoration construction. Grading/dredging impacts would occur in approximately 182 acres (approximately 19 percent) of habitat and inundation would impact an additional 130 acres (approximately 13 percent) of habitat within the San Elijo Lagoon BSA (Figure 4-4). The extensive hillsides along the lagoon and the eastern end of the BSA would not be impacted by restoration construction.

Similar to Alternative 2A, restoration construction would result in greater than 50 percent temporal loss of sensitive habitats that would be significantly impacted by construction. These habitats include coastal salt marsh (low-and mid), open water, saltpan/open water, and tidal mudflats. The temporal loss of these habitats may threaten local populations of sensitive resident species, as described further Section 4.3.3. Short-term direct impacts to coastal salt marsh (low-and mid), open water, saltpan/open water, and tidal mudflats are therefore considered significant and adverse.

Temporary impacts to beach, coastal brackish marsh, high coastal salt marsh, coastal strand, Diegan coastal sage scrub, and southern willow scrub are not considered significant because greater than 50 percent of the local habitat would remain available to local resident and migratory species during construction. Short-term direct impacts to beach, coastal brackish marsh, high coastal salt marsh, coastal strand, Diegan coastal sage scrub, and southern willow scrub are therefore considered less than significant and not substantially adverse.

No direct impacts are proposed to coyote bush scrub, Diegan coastal sage scrub/chaparral, disturbed wetland, nonnative grassland, and sandbar willow scrub.

#### USFWS Critical Habitat

Impacts to USFWS critical habitat for western snowy plover would be similar to those discussed for Alternative 2A. As with Alternative 2A, temporary impacts to critical habitat, for the purpose of restoration, would be considered less than significant.

Similar to Alternative 2A, no new impacts to coastal California gnatcatcher critical habitat would result from restoration construction. Therefore, impacts would be considered less than significant and not substantially adverse.

#### Essential Fish Habitat

Construction of Alternative 1B would result in similar temporary and short-term impacts to EFH associated with grading and dredging operations as discussed for Alternative 2A. No significant or substantially adverse impacts to EFH are anticipated with implementation of Alternative 1B.

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## Indirect Impacts

Short-term indirect impacts associated with Alternative 1B would be similar to Alternative 2A. No significant or substantially adverse indirect impacts to vegetation communities would result with project implementation.

### **Long-term**

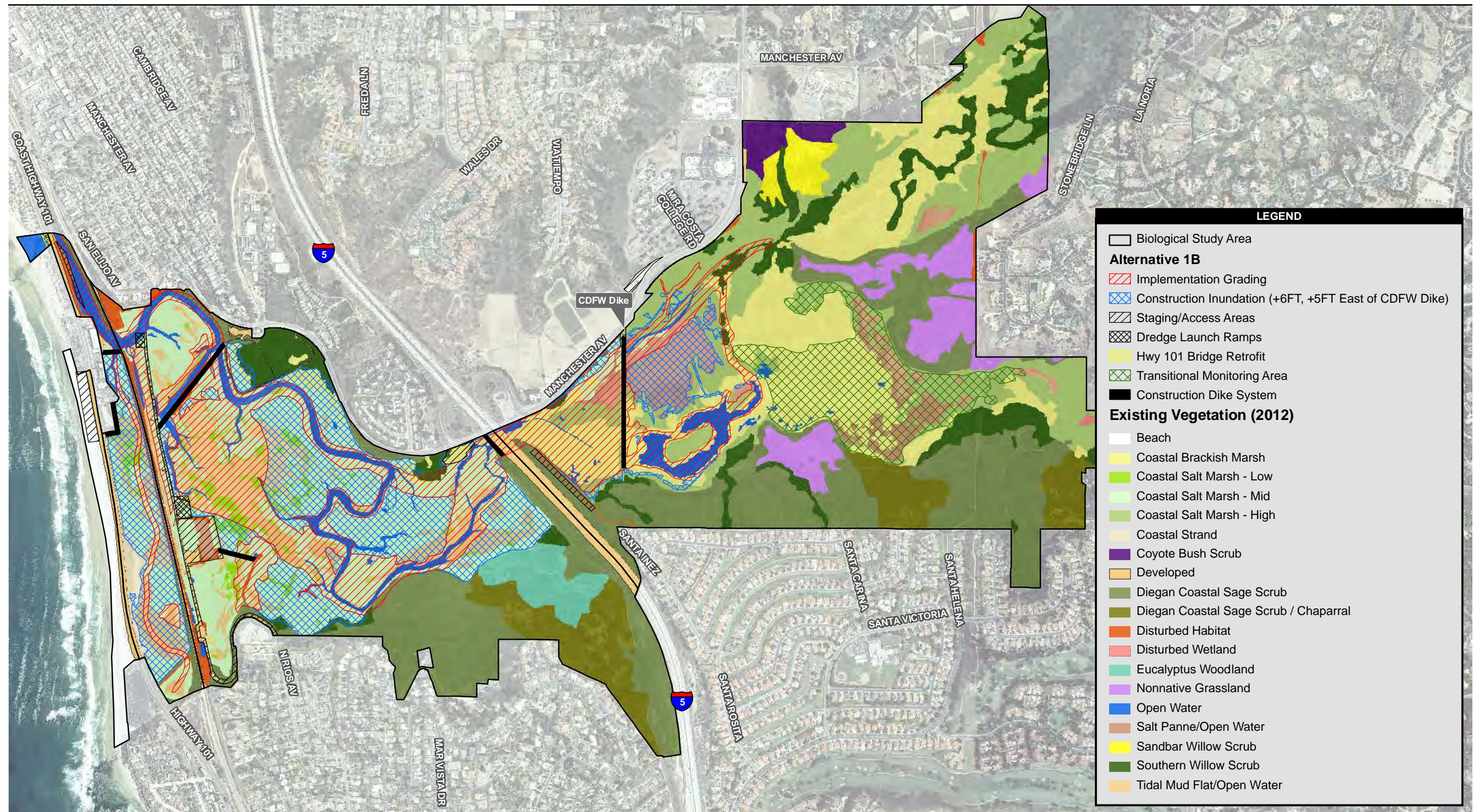
Long-term changes in vegetation (5–10 years post-restoration) would occur from implementation of Alternative 1B, as shown in Table 4-2 and Figure 1-3. Within 5–10 years following restoration, habitats are expected to have substantially recovered and matured. The overall acreage of sensitive habitats within the lagoon would remain approximately 960 acres. However, changes between sensitive vegetation in the lagoon would occur with the dredging of channels/basins, grading, and improvements to hydrologic function.

Alternative 1B incorporates hydrologic improvements and proposes additional grading and dredging to further increase tidal influence in the central and east basins while retaining the existing ocean inlet. Major features of Alternative 1B include a matrix of mudflats and secondary channels south of the main channel. Existing emergent low-marsh would be retained (i.e., would not be graded, but would be inundated) to the extent possible to create a diverse habitat distribution in the basin. Based on hydrologic modeling (Moffatt and Nichol 2012), little change in habitat distributions would occur in the east basin under Alternative 1B relative to Alternative 2A, except that under Alternative 1B greater low-marsh would be retained at the expense of additional mudflat.

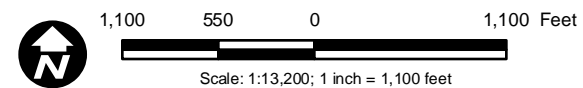
Alternative 1B would result in an increase in subtidal habitat relative to the existing and projected No Project/No Federal Action conditions. Most of the increase in subtidal habitat would occur in the central and east basins and would result in a corresponding decrease in nontidal high-salt marsh, saltpan, freshwater/brackish marsh, and riparian habitats. The open freshwater ponds currently maintained by the CDFW dike would be converted to subtidal habitat. Intertidal mudflat habitat would be increased relative to existing and projected No Project/No Federal Action conditions, with a corresponding decrease in mid-salt marsh. Man-made transition zone habitat would increase through placement of dredged sediments in selected areas of the central and east basins. This increase would result in a corresponding decrease in mid-salt marsh, and upland area.

Alternative 1B would facilitate the efficient conveyance of seasonal freshwater flows through the system to the existing inlet. Similar to Alternative 2A, an avian nesting area located in the central





Source: SANDAG 2012; MoffattNichol; AECOM 2014



**Figure 4-4**

**Alternative 1B Impacts to Vegetation Communities**



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basin would be established. Removal of the CDFW dike under this alternative may restrict management options that would support avian nesting on saltpan habitat in the east basin.

In summary, habitat changes under Alternative 1B trend similarly to Alternative 2A, although the majority of the saltpan and low-marsh habitat is retained, with less mid-marsh and mudflat habitat planned under this alternative. Similar to Alternative 2A, with implementation of Alternative 1B, mudflat, open water, and man-made transitional habitats would substantially increase over existing conditions. Under Alternative 1B salt marsh, freshwater/brackish marsh, and riparian habitats would be reduced.

The overall acreage of habitat available for sensitive species would remain unchanged with this alternative. In addition, habitats that remain unchanged are expected to benefit from the improved hydrologic function of the lagoon. When considering changes to sensitive habitats, a change from one sensitive habitat to another does not necessarily represent a positive or negative impact. Rather, the ecological ramifications of the change on sensitive species and lagoon ecology would be the primary indicators of impact. As described in Chapter 1.0 and noted above under Alternative 2A, the lagoon habitat is rapidly transitioning over time, with continued loss of mudflat and rapid increase in salt marsh. With rapid transition to salt marsh, there is a reduction in available foraging habitat for sensitive and nonsensitive birds, which has the potential for significant ecological changes in the lagoon and is expected to dramatically change the diversity and density of wildlife that the lagoon is able to continue to support.

With implementation of the proposed SELRP Alternative 1B, the project would result in improved hydrologic function and increased foraging habitat, and would reverse the rapid changes that are occurring under existing conditions. Species-specific impacts associated with these changes are evaluated below. The substantial change in habitat from one sensitive vegetation community to another sensitive vegetation community does not in itself represent a significant biological impact. With improved lagoon ecology, increased foraging for species, and no overall loss of lagoon resources, impacts to sensitive vegetation communities with project implementation of Alternative 1B are considered less than significant and not substantially adverse.

#### USFWS Critical Habitat

The impacts to USFWS critical habitat would be the same as Alternative 2A and are therefore considered less than significant and not substantially adverse.

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## Essential Fish Habitat

Construction of Alternative 1B would result in similar long-term beneficial impacts to EFH as discussed for Alternative 2A. This alternative would create additional acreages of open water, tidal channels, and mudflat habitat, as well as enhance the conditions of existing subtidal habitat by increasing tidal influence within the lagoon. Although less subtidal habitat would be created under this alternative, this additional acreage of habitat would also support local fish populations and benefit EFH within the project area. No long-term significant or substantially adverse impact to EFH is anticipated with implementation of Alternative 1B.

## Indirect Impacts

Long-term indirect changes to the vegetation communities under Alternative 1B would be similar to those described for Alternative 2A. Indirect passive/natural transition of habitat is anticipated to be neutral or beneficial to the lagoon, and would be monitored via the project's Adaptive Management program; therefore, impacts are considered less than significant and not substantially adverse.

### **4.3.2 Jurisdictional Waters and Wetlands**

Of the approximately 620 acres of wetlands, approximately 285.8 acres would be directly impacted by construction (159.2 acres from grading/dredging and 126.6 acres from inundation). Of this, approximately 0.28 acre is considered state-only waters, because it represents the riprap bank at the existing inlet to the lagoon. The short-term and long-term (direct and indirect) impacts resulting from the implementation of Alternative 1B would be similar to those discussed for Alternative 2A and are considered less than significant and not substantially adverse.

### **4.3.3 Sensitive Species**

#### **4.3.3.1 Flora**

### **Federally Listed and State-Listed Plant Species**

No federally listed or state-listed rare, threatened, or endangered plant species occur within the areas proposed for restoration. As with Alternative 2A, one federally listed plant species, Del Mar manzanita, and one state-listed species, Orcutt's goldenbush, occur in uplands habitat and would not be affected by the proposed project.

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Approximately 11 individuals of southwestern spiny rush (CNPS List 4.2) are within the grading limits of Alternative 1B and would be directly impacted. However, this direct impact is not considered significant, due to the several hundred individuals scattered throughout the mid- and high-salt marsh habitats within the lagoon. The large population of southwestern spiny rush is expected to persist within the lagoon, as the majority of the mid- and high-salt marsh habitats would remain intact. Therefore, no significant or substantially adverse impacts to sensitive plant populations are anticipated with construction of Alternative 1B.

### **Nonlisted Plant Species**

Impacts to nonlisted plant species are similar to Alternative 2A. Alternative 1B is not expected to result in the decline of any species below self-sustaining levels; impacts are considered less than significant and not substantially adverse. In addition, no long-term impacts to nonlisted plant species are expected as the restoration project and the corresponding improvements to ecological conditions are considered beneficial to all 28 species.

#### **4.3.3.2 Fauna**

There is the potential for both short-term/temporary effects and long-term/permanent effects associated with the implementation of Alternative 1B. There is also the potential for direct and indirect short-term changes as a result of Alternative 1B that may affect sensitive species. As with Alternative 2A, these effects would be the result of grading, dredging, and controlled prolonged inundation. These effects may be considered negative (impact) or positive (benefit); both are discussed related to the seven state-listed and/or federally listed species as described for Alternative 2A.

#### **Short term**

Direct short-term/temporary effects may include the short-term loss of nesting and/or foraging habitat as well as noise impacts as a result of construction activities such as grading, dredging, and controlled prolonged inundation.

Impacts resulting from Alternative 1B are similar to Alternative 2A but to a lesser extent. This alternative was designed to maximize lagoon habitat diversity while minimizing direct impacts to the rapidly expanding low-marsh habitat. As part of the restoration effort, nesting or foraging habitat would be temporarily impacted (i.e., graded, dredged, or inundated) during construction, which may affect listed species that use the lagoon and rely on this habitat. The direct temporary impacts to listed species habitat, including nesting and foraging, are summarized in Table 4-8. As with Alternative 2, short-term impacts are separated into two types: 1. areas that would be

**Table 4-8**  
**Alternative 1B Impacts to Suitable Habitat for Listed Bird Species**

| Species                   | Habitat Suitability* | Habitat Type              | Existing Habitat Acres | Grading Direct Impact to Existing Habitat |         | Inundation Direct Impact to Existing Habitat |         | Total Direct Impact to Existing Habitat |               |
|---------------------------|----------------------|---------------------------|------------------------|---|---------|--|---------|---|---------------|
|                           |                      |                           |                        | Acres                                     | Percent | Acres  | Percent | Total Acres                             | Total Percent |
| light-footed clapper rail | Nesting/Foraging     | Coastal Brackish Marsh    | 131.5                  | 23.9                                      | 18%     | 4.2  | 3%      | 28.1                                    | 21%           |
|                           |                      | Coastal Salt Marsh – Low  | 13.3                   | 6.4                                       | 48%     | 5.8  | 44%     | 12.2                                    | 92%           |
|                           |                      | Total Nesting             | 144.8                  | 30.3                                      | 21%     | 10   | 7%      | 40.3                                    | 28%           |
|                           | Foraging             | Mudflats                  | 63.1                   | 32.1                                      | 51%     | 25.2   | 40%     | 57.3                                    | 91%           |
|                           |                      | Coastal Salt Marsh – Mid  | 141.4                  | 50.7                                      | 36%     | 69.2   | 49%     | 119.9                                   | 85%           |
|                           |                      | Coastal Salt Marsh – High | 120                    | 12.5                                      | 10%     | 3.3  | 3%      | 15.8                                    | 13%           |
|                           |                      | Total Foraging            | 324.5                  | 95.3                                      | 29%     | 97.7   | 30%     | 193.0                                   | 59%           |
| California least tern     | Nesting              | Saltpan                   | 36.9                   | 6.6                                       | 18%     | 13.7   | 37%     | 20.3                                    | 55%           |
|                           |                      | Coastal Strand            | 5                      | 0   | 0%      | 1.4  | 28%     | 1.4                                     | 28%           |
|                           |                      | Nesting Area**            | 0                      | 0   | 0%      | 0  | 0%      | 0.0                                     | 0%            |
|                           |                      | Total Nesting             | 41.9                   | 6.6                                       | 16%     | 15.1   | 36%     | 21.7                                    | 52%           |
|                           | Foraging             | Subtidal/Channels         | 40.1                   | 31.4                                      | 78%     | 3  | 7%      | 34.4                                    | 86%           |
|                           |                      | Beach                     | 15                     | 2.1                                       | 0%      | 0  | 0%      | 2.1                                     | 14%           |
|                           |                      | Total Foraging            | 55.1                   | 31.4                                      | 57%     | 3  | 5%      | 34.4                                    | 62%           |
| western snowy plover      | Nesting              | CDFW dike                 | 0.4                    | 0.4                                       | 100%    | 0  | 0%      | 0.4                                     | 100%          |
|                           |                      | Saltpan                   | 36.9                   | 6.6                                       | 18%     | 13.7   | 37%     | 20.3                                    | 55%           |
|                           |                      | Coastal Strand            | 5                      | 0   | 0%      | 1.4  | 28%     | 1.4                                     | 28%           |
|                           |                      | Nesting Area**            | 0                      | 0   | 0%      | 0  | 0%      | 0.0                                     | 0%            |
|                           |                      | Total Nesting             | 42.3                   | 7   | 17%     | 15.1   | 36%     | 22.1                                    | 52%           |
|                           | Foraging             | Mudflats                  | 63.1                   | 32.1                                      | 51%     | 25.2   | 40%     | 57.3                                    | 91%           |
|                           |                      | Beach                     | 15                     | 2.1                                       | 0%      | 0  | 0%      | 2.1                                     | 14%           |
|                           |                      | Total Foraging            | 78.1                   | 32.1                                      | 41%     | 25.2   | 32%     | 57.3                                    | 73%           |



| Species                        | Habitat Suitability* | Habitat Type                        | Existing Habitat Acres | Grading Direct Impact to Existing Habitat |         | Inundation Direct Impact to Existing Habitat |         | Total Direct Impact to Existing Habitat |               |
|--------------------------------|----------------------|-------------------------------------|------------------------|---|---------|--|---------|---|---------------|
|                                |                      |                                     |                        | Acres                                     | Percent | Acres  | Percent | Total Acres                             | Total Percent |
| coastal California gnatcatcher | Nesting/Foraging     | Diegan Coastal Sage Scrub           | 178.1                  | 4.6                                       | 3%      | 0.7  | 0%      | 5.3                                     | 3%            |
|                                |                      | Diegan Coastal Sage Scrub/Chaparral | 49.3                   | 0   | 0%      | 0.03   | 0%      | 0.0                                     | 0%            |
|                                |                      | Coyote Bush Scrub                   | 7.5                    | 0   | 0%      | 0  | 0%      | 0.0                                     | 0%            |
|                                |                      | Total Nesting/Foraging              | 234.9                  | 4.6                                       | 2%      | 0.73   | 0%      | 5.3                                     | 2%            |
| least Bell's vireo             | Nesting/Foraging     | Sandbar Willow Scrub                | 9                      | 0   | 0%      | 0  | 0%      | 0.0                                     | 0%            |
|                                |                      | Southern Willow Scrub               | 61.4                   | 2.9                                       | 5%      | 2.2  | 4%      | 5.1                                     | 8%            |
|                                |                      | Total Nesting/Foraging              | 70.4                   | 2.9                                       | 4%      | 2.2  | 3%      | 5.1                                     | 7%            |
| southwestern willow flycatcher | Nesting/Foraging     | Southern Willow Scrub               | 61.4                   | 2.9                                       | 5%      | 2.2  | 4%      | 5.1                                     | 8%            |
|                                |                      | Total Nesting/Foraging              | 61.4                   | 2.9                                       | 5%      | 2.2  | 4%      | 5.1                                     | 8%            |
| Belding's savannah sparrow     | Nesting              | Coastal Salt Marsh – Mid            | 141.4                  | 50.7                                      | 36%     | 69.2   | 49%     | 119.9                                   | 85%           |
|                                |                      | Coastal Salt Marsh – High           | 120                    | 12.5                                      | 10%     | 3.3  | 3%      | 15.8                                    | 13%           |
|                                |                      | Total Nesting                       | 261.4                  | 63.2                                      | 24%     | 72.5   | 28%     | 135.7                                   | 52%           |
|                                | Foraging             | Coastal Salt Marsh – Low            | 13.3                   | 6.4                                       | 48%     | 5.8  | 44%     | 12.2                                    | 92%           |
|                                |                      | Total Foraging                      | 13.3                   | 6.4                                       | 48%     | 5.8  | 44%     | 12.2                                    | 92%           |

CDFW = California Department of Fish and Wildlife

\*Nesting habitat is considered suitable for both breeding and foraging activities, while habitat identified as “Foraging” is not expected to support breeding activities.

\*\*Under existing conditions, a portion of the nesting area is classified as saltpan.

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graded/dredged during construction and areas that would be affected by controlled inundation only. Although both impacts are direct, the duration of the temporary impacts associated with inundation are less predictable as these vegetation communities are adapted to tolerate long periods of inundation. Phased construction across the three lagoon basins would preserve some habitat areas, allowing for species refugia during construction, and would also restrict vegetation removal activities to outside of the nesting season.

#### Least Bell's Vireo and Southwestern Willow

Short-term direct impacts to least Bell's vireo and southwestern willow flycatcher as a result of Alternative 1B are similar as those described for Alternative 2A. Both species have been observed in low numbers foraging primarily within the southern willow scrub habitat. Construction of Alternative 1A would directly impact 5.1 acres (8 percent) of the southern willow scrub riparian habitat within the lagoon as a result of grading and inundation (Table 4-8). As vegetation would be removed outside of the breeding season and both species use the site primarily for foraging during summer months, the short-term impact to 8 percent of the southern willow scrub riparian habitat is not substantial and would not result in a decline in the local population below self-sustaining levels. Therefore, short-term direct impacts to least Bell's vireo and southwestern willow flycatcher would be less than significant and not substantially adverse.

#### Coastal California Gnatcatcher

Coastal California gnatcatcher are observed along the periphery of San Elijo Lagoon within the sage scrub and chaparral habitats. As described for Alternative 2A, an access road along the southwest corner of the central basin may need to be enhanced to accommodate construction vehicular traffic for Alternative 1B. In addition, a small foot trail would be temporarily expanded to allow vehicle access to the man-made transitional habitat and staging area. The intent is to maintain road enhancement activities to the existing footprint; however a conservative analysis of potential impacts has been included. The road and trail enhancement activities are the same for both alternatives. There is the potential to impact nesting coastal California gnatcatcher in this area during vegetation removal. To avoid this potential impact, vegetation would be cleared outside of the bird nesting season. Temporary impacts to gnatcatcher would not result in a decline in the local population below self-sustaining levels. Therefore impacts are considered less than significant and not substantially adverse.

#### California Least Tern and Western Snowy Plover

Impacts to California least tern and western snowy plover are similar to those described for Alternative 2A, including impacts to foraging habitat for both species as a result of grading and

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habitat conversion (Table 4-8). Primary differences include 7 additional acres of temporary impacts on subtidal channels under Alternative 1B relative to Alternative 2A in addition to 2.8 acres of few impacts to beach habitat for Alternative 1B. Impacts to foraging habitat would be phased across the three lagoon basins, and within each basin, so that large contiguous areas of foraging habitat would remain. Although short-term impacts to foraging habitat would occur, short-term benefits are also expected as lagoon conditions improve. The improved conditions would result in higher productivity in the restored mudflats and subtidal habitat and direct benefits to birds that forage on them, such as the California least tern and western snowy plover.

### Belding's Savannah Sparrow

Under Alternative 1B, temporary impacts to Belding's savannah sparrow are almost identical to Alternative 2A with impacts to nesting and foraging habitat resulting from dredging and inundation (Figure 4-5). Temporary impact acreages are presented in Table 4-8. Of the 261.4 acres of suitable nesting habitat for Belding's savannah sparrow, 135.7 acres (52 percent) would be impacted as a result of construction for Alternative 1B. In addition 12.2 acres (92 percent) of low-marsh, an important foraging habitat for Belding's, would be impacted. The temporary loss of habitat is considered a substantial impact to the existing population of Belding's savannah sparrow as it is greater than 50 percent of the habitat.

As with Alternative 2A, Alternative 1B would create noninundated refugia in the west and central basins to maximize available nesting and foraging habitat during construction. It is anticipated that the resident Belding's savannah sparrow would respond to the restoration as they do to seasonal variability by shifting and contracting their territory size to accommodate new available acreage available. Birds that do not relocate to the refugia may remain on the perimeter of the lagoon or may choose to leave the lagoon and seek residency elsewhere. The project would minimize impacts by removing all vegetation outside of the breeding season, using controlled inundation to move birds out of the work area, and implementing a habitat enhancement plan. Belding's savannah sparrow is a year-round resident and project construction would result in the temporary loss of greater than 50 percent of their nesting habitat (mid- and high-salt marsh). This temporary construction impact is considered a significant impact to the local population. As such, Alternative 2A would have a significant and adverse short-term direct impact on Belding's savannah sparrow.

### Light-footed Clapper Rail

Impacts to light-footed clapper rail from Alternative 1B would be similar to Alternative 2A including direct impacts to 40.3 acres (28 percent) of existing suitable nesting habitat (Table 4-8 and Figure 4-6). In addition, Alternative 1B would temporarily impact 193 acres (59 percent) of

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foraging habitat including mudflats (57.3 acres), mid-marsh (119.9 acres), and high-marsh (15.8 acres). As mentioned above, Alternative 1B was designed to minimize grading impacts to the rapidly expanding low-marsh habitat, which is the preferred nesting habitat of the light-footed clapper rail. The primary impact to low-marsh habitat is a result of the overdredge pit in the central basin, which is needed for soil disposal associated with dredging as well as the need to conduct controlled inundation to accommodate the dredge. These impacts in addition to the channel expansion into the east basin would affect both the low-marsh and brackish marsh habitat that support light-footed clapper rail.

The loss of habitat is an impact; however it is not considered substantial as the impact is less than 50 percent of the habitat and the remaining habitat can support the existing population of light-footed clapper rail. The project has proposed design features to minimize impacts, including the removal of all vegetation outside of the bird breeding season, use of a biological monitor, flushing techniques, and a habitat enhancement plan. With implementation of project design features and construction monitoring, and because greater than 50 percent of breeding habitat would remain available during construction of the proposed project, short-term direct impacts on light-footed clapper rail are considered less than significant and not substantially adverse.

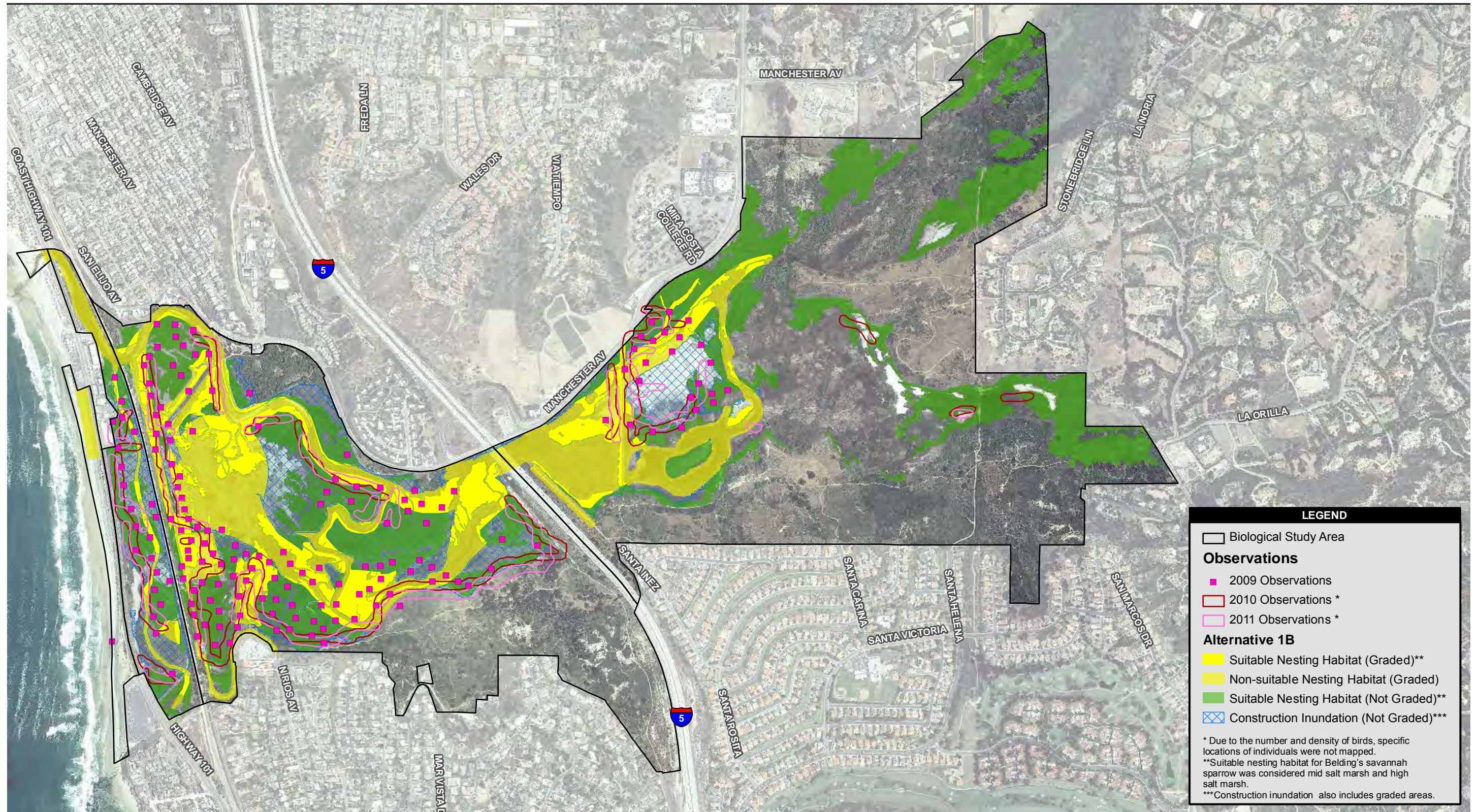
#### Indirect

Indirect short-term/temporary effects may include increases in exposure to predators, degraded water quality, disturbed unconsolidated sediment, and noise. These impacts are identical to those described for Alternative 2A.

Species may be exposed to higher predation as they would be more concentrated in the remaining unimpacted habitat, much of which is lower condition. To reduce temporary impacts to marsh birds resulting from the indirect effects of the short-term loss of nesting and foraging habitat, the project has included a variety of design features, including preparation and implementation of a habitat enhancement plan and a predator control program, as described for Alternative 2A.

During construction, sensitive birds using the lagoon may be exposed to degraded water quality resulting from dredging and other sediment-disturbing activities. These impacts are expected to be localized to the active dredge area and not expected to substantially affect sensitive bird species. In addition, the project would implement BMPs to further reduce water quality impacts and the indirect effects to sensitive birds (see Chapter 1.0). Dredging activities may also facilitate foraging as benthic organisms are disturbed and released into the water column increasing foraging success for birds.





**LEGEND**

Biological Study Area

**Observations**

2009 Observations

2010 Observations \*

2011 Observations \*

**Alternative 1B**

Suitable Nesting Habitat (Graded)\*\*

Non-suitable Nesting Habitat (Graded)

Suitable Nesting Habitat (Not Graded)\*\*

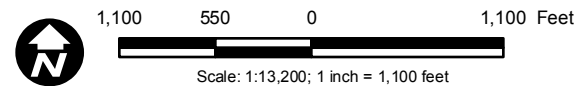
Construction Inundation (Not Graded)\*\*\*

\* Due to the number and density of birds, specific locations of individuals were not mapped.

\*\*Suitable nesting habitat for Belding's savannah sparrow was considered mid salt marsh and high salt marsh.

\*\*\*Construction inundation also includes graded areas.

Source: SANDAG 2012; Patton 2010, 2012; AECOM 2014



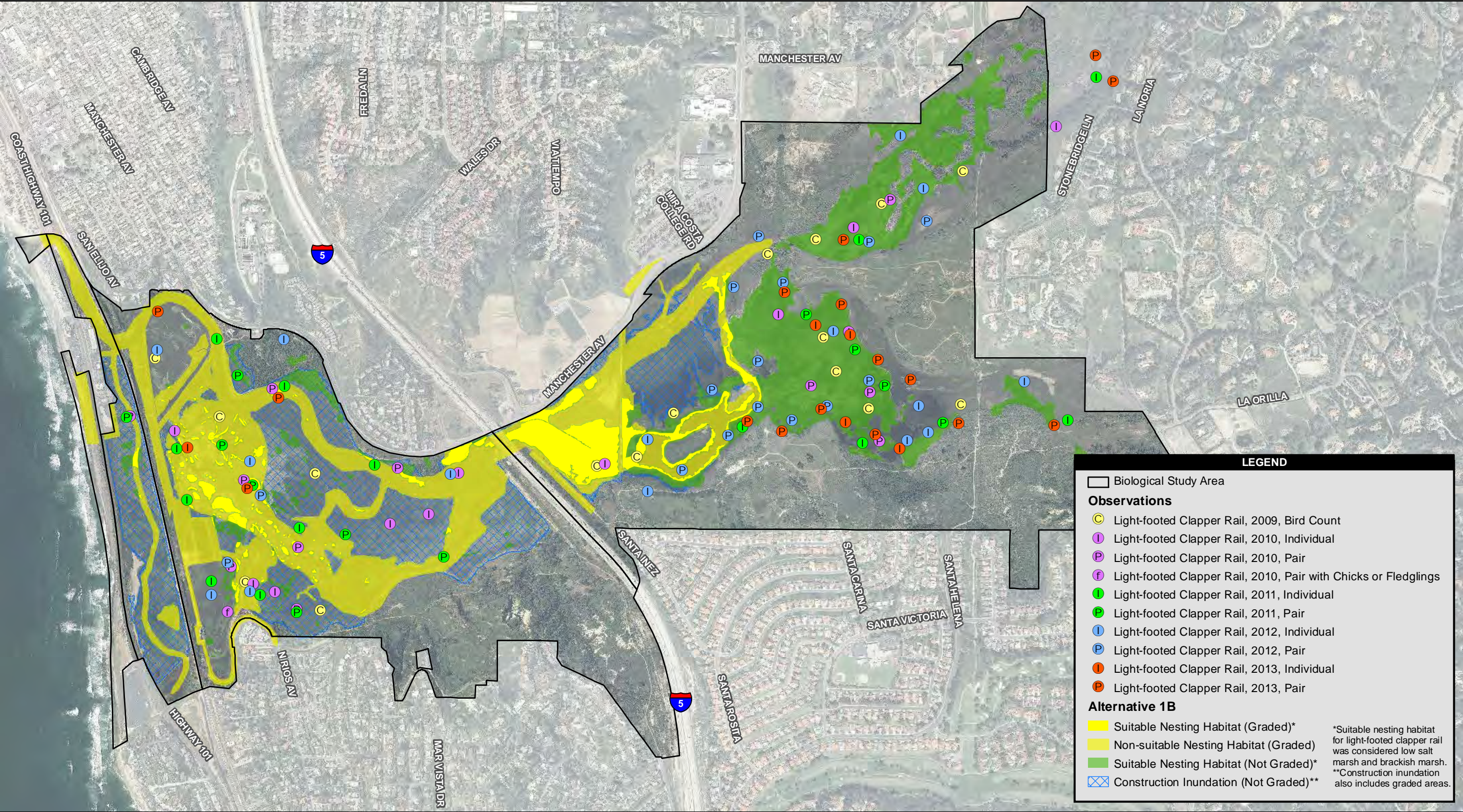
**Figure 4-5**  
**Belding's Savannah Sparrow**  
**Suitable Nesting Habitat Impact Analysis, Alternative 1B**



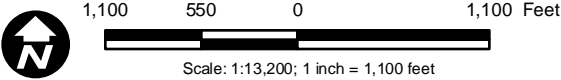
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Source: SANDAG 2012; Zembal 2011, 2012; AECOM 2014



**Figure 4-6**  
**Light-footed Clapper Rail**  
**Suitable Nesting Habitat Impact Analysis, Alternative 1B**



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With implementation of project design features, temporary indirect impacts to sensitive species from predation, water quality, and unconsolidated sediment are considered less than significant and not substantially adverse.

Indirect noise impacts associated with Alternative 1B would be similar to those described for Alternative 2A. The construction (dredging and inundation) footprint for Alternative 1B is similar to Alternative 2A. The total footprint for Alternative 1B is larger than Alternative 2A by 3.2 acres; however, the grading-only footprint is 15.9 acres smaller. The overall construction approach is the same for both alternatives, including the potential use of a diesel dredge and other large construction equipment; as such, temporary impacts from noise to listed species would be similar to those previously described. Similar to Alternative 2A, short-term noise effects on sensitive birds from construction would result in a significant and adverse impact.

As with Alternative 2A, noise from increased vehicular traffic associated with construction of Alternative 1B may also occur. Similar to Alternative 2A, one vehicle route coincides with sensitive birds is the southwest entry point in the central basin where vehicles would enter off of North Rios Avenue and travel west into the lagoon. Noise impacts to birds from vehicular traffic are therefore considered less than significant and not substantially adverse.

### **Long term**

Direct long-term/permanent effects include the active conversion of nesting and/or foraging habitat to another habitat type, modified lagoon conditions, and long-term maintenance and operation.

Habitat for sensitive species would be changed and/or converted as a result of the proposed restoration project. This change may include a direct increase or decrease in the total acreage of a specific habitat type post-restoration. This change may be a result of grading or attributed to the modified hydrology and the elevated high tide line. The direct permanent changes to suitable habitat for sensitive species are summarized in Table 4-9. Implementation of Alternative 1B would extend tidal hydrology to the east basin and result in a modified high tide line of +3.9 feet NGVD, which is higher than the existing high tide line of +3.5 feet NGVD.

**Table 4-9**  
**Alternative 1B Existing and Post-Construction Acreage**  
**of Suitable Habitat for Listed Bird Species**

| Species                        | Habitat Suitability* | Habitat Type                        | Existing Habitat Acres | Habitat Acreage Post-Restoration | Net Change in Habitat Acreage Post-Restoration | Percent Change Post-Restoration |
|--------------------------------|----------------------|-------------------------------------|------------------------|----------------------------------|--|---------------------------------|
| light-footed clapper rail      | Nesting/Foraging     | Coastal Brackish Marsh              | 131.5                  | 99                               | -32.5  | -25%                            |
|                                |                      | Coastal Salt Marsh – Low            | 13.3                   | 51                               | 37.7   | 283%                            |
|                                |                      | Total Nesting                       | 144.8                  | 150                              | 5.2  | 4%                              |
|                                | Foraging             | Mudflats                            | 63.1                   | 71                               | 7.9  | 13%                             |
|                                |                      | Coastal Salt Marsh – Mid            | 141.4                  | 98                               | -43.4  | -31%                            |
|                                |                      | Coastal Salt Marsh – High           | 120                    | 124                              | 4  | 3%                              |
|                                |                      | Total Foraging                      | 324.5                  | 293                              | -31.5  | -10%                            |
| California least tern          | Nesting              | Saltpan                             | 36.9                   | 30                               | -6.9   | -19%                            |
|                                |                      | Coastal Strand                      | 5                      | 5                                | 0  | 0%                              |
|                                |                      | Nesting Area**                      | 0                      | 2                                | 2  | 200%                            |
|                                |                      | Total Nesting                       | 41.9                   | 37                               | -4.9   | -12%                            |
|                                | Foraging             | Subtidal/Channels                   | 40.1                   | 67                               | 26.9   | 67%                             |
|                                |                      | Beach                               | 15                     | 15                               | 0  | 0%                              |
|                                |                      | Total Foraging                      | 55.1                   | 82                               | 26.9   | 49%                             |
| western snowy plover           | Nesting              | CDFW dike                           | 0.4                    | 0                                | -0.4   | -100%                           |
|                                |                      | Saltpan                             | 36.9                   | 30                               | -6.9   | -19%                            |
|                                |                      | Coastal Strand                      | 5                      | 5                                | 0  | 0%                              |
|                                |                      | Nesting Area**                      | 0                      | 2                                | 2  | 200%                            |
|                                |                      | Total Nesting                       | 42.3                   | 37                               | -5.3   | -13%                            |
|                                | Foraging             | Mudflats                            | 63.1                   | 71                               | 7.9  | 13%                             |
|                                |                      | Beach                               | 15                     | 15                               | 0  | 0%                              |
| coastal California gnatcatcher | Nesting/Foraging     | Total Foraging                      | 78.1                   | 86                               | 7.9  | 10%                             |
|                                |                      | Diegan Coastal Sage Scrub           | 178.1                  | 173.5                            | -4.6   | -3%                             |
|                                |                      | Diegan Coastal Sage Scrub/Chaparral | 49.3                   | 49.3                             | 0  | 0%                              |
|                                |                      | Coyote Bush Scrub                   | 7.5                    | 7.5                              | -0.02  | 0%                              |
| least Bell's vireo             | Nesting/Foraging     | Total Nesting/Foraging              | 234.9                  | 230.28                           | -4.62  | -2%                             |
|                                |                      | Sandbar Willow Scrub                | 9                      | 9                                | -0.06  | -1%                             |
|                                |                      | Southern Willow Scrub               | 61.4                   | 58.5                             | -2.9   | -5%                             |
| southwestern willow flycatcher | Nesting/Foraging     | Total Nesting/Foraging              | 70.4                   | 67.44                            | -2.96  | -4%                             |
|                                |                      | Southern Willow Scrub               | 61.4                   | 58.5                             | -2.9   | -5%                             |
|                                |                      | Total Nesting/Foraging              | 61.4                   | 58.5                             | -2.9   | -5%                             |
| Belding's savannah sparrow     | Nesting              | Coastal Salt Marsh – Mid            | 141.4                  | 98                               | -43.4  | -31%                            |
|                                |                      | Coastal Salt Marsh – High           | 120                    | 124                              | 4  | 3%                              |
|                                |                      | Total Nesting                       | 261.4                  | 222                              | -39.4  | -15%                            |
|                                | Foraging             | Coastal Salt Marsh – Low            | 13.3                   | 51                               | 37.7   | 283%                            |
|                                |                      | Total Foraging                      | 13.3                   | 51                               | 37.7   | 283%                            |

CDFW = California Department of Fish and Wildlife

\*Nesting habitat is considered suitable for both breeding and foraging activities, while habitat identified as “Foraging” is not expected to support breeding activities.

\*\*Under existing conditions, a portion of the nesting area is classified as saltpan.

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### Least Bell's Vireo and Southwestern Willow Flycatcher

Least Bell's vireo and southwestern willow flycatcher utilize riparian habitat on-site for foraging habitat. Both species are not known to breed on-site, but there is the potential that successful vireo breeding has occurred. As with Alternative 2A, Alternative 1B would actively convert 5 percent of the southern willow scrub habitat and 1 percent of sandbar willow scrub as a result of the expansion of tidal channels in the east basin and widening of tidal channels in the central basin (Table 4-9). The loss of 4 percent of riparian habitat is not substantial and would not result in a decline in the local populations of least Bell's vireo and southwestern willow flycatcher below self-sustaining levels. Therefore, impacts are considered less than significant and not substantially adverse.

### Coastal California Gnatcatcher

Coastal California gnatcatcher are observed along the periphery of San Elijo Lagoon within the sage scrub and chaparral habitats. Enhancement of the access road off North Rios Avenue could permanently impact 0.7 acre of occupied habitat, although the intent is to conduct activities within the existing road alignment, with the exception of focused widening along the trail to access the man-made transitional area. This impact, along with the additional 1.2 acres of coastal sage scrub habitat impacted within the lagoon, equates to 1 percent of the total nesting habitat on-site. Impacts associated with permanent impacts to gnatcatcher habitat associated with the road enhancement and lagoon restoration are not substantial and would not result in a decline in the local population below self-sustaining levels.

### California Least Tern and Western Snowy Plover

California least tern and western snowy plover are documented annually, foraging and roosting at San Elijo Lagoon. Neither species has successfully nested on-site since 2002. Impacts to suitable nesting habitat from Alternative 1B would be less than with Alternative 2A. Primary differences between the alternatives include 13 fewer acres of long-term impacts on saltpan habitat under Alternative 1B in addition to 7 fewer acres of impacts to subtidal/channel habitat for Alternative 1B. Alternative 1B would permanently decrease suitable nesting habitat for California least tern by 4.9 acres (12 percent of suitable nesting habitat) and decrease suitable nesting habitat for western snowy plover by 5.3 acres (13 percent of suitable nesting habitat) (Table 4-9). As neither species currently breeds on-site, the loss of nesting habitat does not substantially affect either species. In addition, implementation of a predator control program may also improve conditions of remaining suitable nesting habitat. Furthermore, both species are expected to benefit from restoration of the lagoon, including increased acreage and improved condition of foraging habitat. Implementation of Alternative 1B would directly benefit these species.

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### Belding's Savannah Sparrow

As depicted in Table 4-9, Alternative 1B would reduce available nesting habitat for Belding's savannah sparrow by 39.4 acres, which equates to a loss of 15 percent compared to existing conditions. The loss of Belding's nesting habitat associated with Alternative 1B is 3 percent (9 acres) more than with Alternative 2A. The greatest reduction in habitat is within the central basin where mid-marsh is being replaced with mudflat habitat. This reduction in nesting habitat would not result in a substantial decline in the local population below self-sustaining levels as Belding's savannah sparrow are known to modify their densities based on natural annual variations in habitat availability. In addition, the changes to lagoon hydrology would increase the condition of the remaining foraging and nesting habitat suitable for Belding's savannah sparrow. While the project would result in an overall reduction in available nesting habitat of 15 percent, the improved conditions for the remaining 222 acres of mid- and high-marsh habitat resulting from the restoration outweigh the impact associated with the loss of habitat acreage. Implementation of Alternative 1B would ultimately benefit the Belding's savannah sparrow population at San Elijo Lagoon and long-term direct impacts are considered less than significant and not substantially adverse.

### Light-footed Clapper Rail

Light-footed clapper rail nesting and foraging habitat would be modified as part of Alternative 1B. Post-restoration, a small increase of nesting habitat acreage would occur for light-footed clapper rail of 5.2 acres equating to a gain of 4 percent when compared to existing conditions. This increase in acreage is a combination of change associated with the loss of coastal brackish marsh and the gain of low-marsh. The greatest change is within the east basin where brackish marsh is being replaced by subtidal and low-marsh habitat. Although brackish marsh is being reduced by 32.5 acres (25 percent), the preferred habitat of clapper rail is considered low-marsh, which is currently limited in the lagoon. Alternative 1B would result in an increase in the low-marsh from the current 13.3 acres to 51 acres, an increase of 37.7 acres.

Under Alternative 1B, the expansion of preferred habitat (compared to existing conditions) would occur in the central and east basins. In addition to affecting habitat acreage, the changes to lagoon hydrology under Alternative 1B would improve the condition of the remaining foraging and nesting habitat for light-footed clapper rail. Foraging habitat would also be affected by Alternative 1B, with a small net increase in acreage but a larger increase in condition. The improved conditions for nesting and foraging habitat outweigh the loss of habitat acreage. The net loss of nesting habitat is considered an impact; however, the reduction in nesting habitat would not substantially affect the sustainability of the clapper rail population within the lagoon.



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Ultimately, the project would benefit light-footed clapper rail populations at San Elijo Lagoon. Therefore, impacts are considered less than significant and not substantially adverse.

As part of the restoration project, there would be long-term monitoring and maintenance, which has the potential to impact sensitive birds in the lagoon. Avoidance measures would be included in the adaptive management, maintenance, and monitoring program. As such, long-term monitoring and maintenance activities are not expected to have a substantial effect on any sensitive species, and impacts are considered less than significant and not substantially adverse.

With implementation of project design features and the net benefits of the restoration project, permanent direct impacts to sensitive species from active conversion of nesting and/or foraging habitat, modified lagoon conditions, and long-term maintenance and operation are considered less than significant and not substantially adverse.

### Indirect

Indirect long-term/permanent effects include the passive transition of nesting and/or foraging habitat to another habitat type, increased potential for invasive species, and changes to water quality.

Habitat above the high tide line, within the transitional area, may passively transition (change) over a long period of time. The transitional area is considered to begin at the high tide line and extend up to 2+ feet above the high tide line. For Alternative 1B, this area is found between +3.9 feet NGVD and +5.9 feet NGVD. As a result of Alternative 1B, the transitional area would include man-made and existing natural areas. Passive transition of habitat within the new natural transitional area is possible although unpredictable. Over time, this area may change from brackish marsh and saltpan habitat to salt marsh habitat. Although the change in habitat is unpredictable in the transitional area, the connection to tidal hydrology and the improved freshwater export is expected to ultimately enhance the condition of the existing habitat within the east basin transitional area. Indirect impacts to sensitive species resulting from changes to the new transitional area are less than significant and not substantially adverse.

It is possible that reduced periods of saturation and increased salinity may make transitional areas more prone to invasion by nonnative species. As part of the post-construction habitat monitoring and maintenance program for this project, the occurrence of these invasive species would be closely monitored and maintenance would regularly conduct treatments to limit the possibility of invasion. Indirect impacts to sensitive species resulting from invasive species are not considered substantial.

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As described for Alternative 2A, indirect changes to lagoon condition are expected as a result of Alternative 1B and the corresponding improvement to tidal hydrology (i.e., circulation, turnover, freshwater export, etc.). The indirect improvement to water quality would benefit sensitive species.

With implementation of project design features and the net benefits of the restoration project, indirect permanent impacts to sensitive species from passive transition of nesting and/or foraging habitat and invasive species are considered less than significant and not substantially adverse for Alternative 1B.

### **Nonlisted Special-status Wildlife Species**

Impacts to nonlisted special-status wildlife species associated with the construction of Alternative 1B will be the same as Alternative 2A as the extent of grading and use of controlled inundation are similar. Short-term impacts to migratory and nonresident wildlife species are considered less than significant and not substantially adverse. No long-term impacts to migratory and nonresident wildlife species are expected as the restoration project and the corresponding improvements to ecological conditions are considered beneficial to all 87 nonlisted species.

#### **4.3.4 Wildlife Corridors/Connectivity**

Alternative 1B would have similar temporary and short-term impacts to wildlife corridors and connectivity as discussed for Alternative 2A. The lagoon is not considered a regional wildlife corridor, but no long-term impacts are anticipated. The lagoon would still function as a large area of natural open space corridor that would allow for wildlife movement and connectivity similar to existing conditions. Therefore, no significant or adverse short-term or long-term impacts to wildlife movements or connectivity are anticipated with implementation of Alternative 1B.

### **Local Ordinances/Policies/Adopted Plans**

Similar to Alternative 2A, all restoration, maintenance, and monitoring plans prepared for Alternative 1B would be prepared in accordance with the goals of these regional conservation plans, and in consultation with the wildlife agencies. The project is consistent with the goals and objectives of both the MHCP and draft North County MSCP. Therefore, no significant or substantially adverse impact would result with implementation of Alternative 1B.

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## 4.4 ALTERNATIVE 1A

### 4.4.1 Sensitive Riparian and Natural Vegetation Communities

#### Short-term

Construction of Alternative 1A would result in fewer temporary/short-term impacts to sensitive habitats as compared to Alternative 2A and Alternative 1B. Alternative 1A would be constructed in a single phase of approximately 9 months and would not involve inundation. The total acreage by habitat community that would be directly impacted during construction is shown in Table 4-10 by basin and in Table 4-11 for the entire BSA. Alternative 1A would result in impacts to approximately 51 acres (approximately 5 percent) of habitat within the BSA (Figure 4-7).

Temporary impacts to all habitat communities associated with construction of Alternative 1A are not considered significant or substantially adverse, because greater than 50 percent of the local habitat would remain available to local resident and migratory species during construction.

No direct impacts are proposed to coastal strand, coyote bush scrub, Diegan coastal sage scrub/chaparral, disturbed wetland, eucalyptus woodland, nonnative grassland, and sandbar willow scrub.

#### USFWS Critical Habitat

Impacts to USFWS critical habitat for western snowy plover would be similar to those of Alternative 1B and Alternative 2A. As with Alternative 2A, temporary impacts to critical habitat, for the purpose of restoration, would be considered less than significant. Similar to Alternative 1B and Alternative 2A, no new impacts to coastal California gnatcatcher critical habitat would result from restoration construction. Therefore, impacts would be considered less than significant and not substantially adverse.

#### Essential Fish Habitat

Construction of Alternative 1A would result in similar temporary impacts to EFH associated with grading and dredging operations as discussed for Alternative 2A and Alternative 1B. However, Alternative 1A has the smallest amount of construction proposed and therefore would result in fewer temporary impacts to EFH compared to the other alternatives. No significant or substantially adverse impacts to EFH are anticipated with implementation of Alternative 1A.

**Table 4-10**  
**Direct Project Impacts from Construction of Alternative 1A by Basin**

| <b>Basin/Habitat Community</b>      | <b>Existing Vegetation (acreage) within the BSA</b> | <b>Alternative 1A Direct Impacts from Dredging/Grading (acres)</b> | <b>Habitat Temporarily Impacted (% in Basin)</b> |
|-------------------------------------|---|--|--|
| <b>Central Basin</b>                |   |  |  |
| Coastal Brackish Marsh              | 6.1   | 1.1  | 18%  |
| Coastal Salt Marsh – High           | 0.7   | 0.2  | 29%  |
| Coastal Salt Marsh – Low            | 11.8  | 0.1  | 1%   |
| Coastal Salt Marsh – Mid            | 121.3   | 8.7  | 7%   |
| Developed                           | 10.4  | 3.1  | 30%  |
| Diegan Coastal Sage Scrub           | 67.0  | 0.7  | 1%   |
| Diegan Coastal Sage Scrub/Chaparral | 27.7  | 0.0  | 0%   |
| Disturbed Habitat                   | 6.7   | 1.2  | 18%  |
| Eucalyptus Woodland                 | 15.7  | 0.0  | 0%   |
| Open Water                          | 23.7  | 9.0  | 38%  |
| Saltpan/Open Water                  | 1.5   | 1.5  | 100%   |
| Southern Willow Scrub               | 14.4  | 0.1  | 1%   |
| Tidal Mud Flat                      | 49.3  | 1.0  | 2%   |
| <b>Total for Central Basin</b>      | <b>356.3</b>  | <b>26.7</b>  | <b>7%</b>  |
| <b>Coastal Area</b>                 |   |  |  |
| Beach                               | 15.0  | 2.1  | 14%  |
| Developed                           | 3.0   | 0.1  | 3%   |
| Open Water                          | 1.5   | 0.6  | 40%  |
| <b>Total for Coastal Area</b>       | <b>19.5</b>   | <b>2.7</b>   | <b>14%</b>                                       |
| <b>East Basin</b>                   |   |  |  |
| Coastal Brackish Marsh              | 125.4   | 3.8  | 3%   |
| Coastal Salt Marsh – High           | 118.5   | 2.0  | 2%   |
| Coastal Salt Marsh – Mid            | 3.4   | 1.0  | 29%  |
| Coyote Bush Scrub                   | 7.5   | 0.0  | 0%   |
| Developed                           | 4.9   | 0.6  | 12%  |
| Diegan Coastal Sage Scrub           | 108.1   | 1.2  | 1%   |
| Diegan Coastal Sage Scrub/Chaparral | 21.6  | 0.0  | 0%   |
| Disturbed Habitat                   | 2.6   | 0.4  | 15%  |
| Disturbed Wetland                   | 1.1   | 0.0  | 0%   |
| Eucalyptus Woodland                 | 3.4   | 0.0  | 0%   |
| Nonnative Grassland                 | 33.1  | 0.0  | 0%   |
| Open Water                          | 10.6  | 1.4  | 13%  |
| Saltpan/Open Water                  | 35.4  | 0.5  | 1%   |
| Sandbar Willow Scrub                | 8.9   | 0.0  | 0%   |
| Southern Willow Scrub               | 46.9  | 1.3  | 3%   |
| <b>Total for East Basin</b>         | <b>531.5</b>  | <b>12.1</b>  | <b>2%</b>  |
| <b>West Basin</b>                   |   |  |  |
| Coastal Salt Marsh – High           | 0.8   | 0.1  | 13%  |



| <b>Basin/Habitat Community</b> | <b>Existing Vegetation (acreage) within the BSA</b> | <b>Alternative 1A Direct Impacts from Dredging/Grading (acres)</b> | <b>Habitat Temporarily Impacted (% in Basin)</b> |
|--------------------------------|---|--|--|
| Coastal Salt Marsh – Low       | 1.5   | 0.3  | 20%  |
| Coastal Salt Marsh – Mid       | 16.7  | 1.7  | 10%  |
| Coastal Strand                 | 5.0   | 0.0  | 0%   |
| Developed                      | 5.2   | 0.2  | 4%   |
| Diegan Coastal Sage Scrub      | 3.1   | 0.0  | 0%   |
| Disturbed Habitat              | 2.5   | 0.4  | 16%  |
| Open Water                     | 4.3   | 3.9  | 91%  |
| Tidal Mud Flat                 | 13.8  | 1.3  | 9%   |
| <b>Total for West Basin</b>    | <b>52.9</b>   | <b>7.8</b>   | <b>15%</b>                                       |
| <b>TOTAL</b>                   | <b>960.2</b>  | <b>49.4</b>  | <b>5%</b>  |

BSA = Biological Study Area

**Table 4-11**  
**Direct Project Impacts from Construction of Alternative 1A**

| <b>Basin/Habitat Community</b>      | <b>Existing Vegetation (acreage) within the BSA</b> | <b>Alternative 1A Direct Impacts from Dredging/Grading (acres)</b> | <b>Habitat Temporarily Impacted (% in BSA)</b> |
|-------------------------------------|---|--|--|
| Beach                               | 15  | 2.1  | 14%  |
| Coastal Brackish Marsh              | 131.5   | 4.9  | 4%   |
| Coastal Salt Marsh – High           | 120   | 2.3  | 2%   |
| Coastal Salt Marsh – Low            | 13.3  | 0.3  | 2%   |
| Coastal Salt Marsh – Mid            | 141.4   | 11.4   | 8%   |
| Coastal Strand                      | 5   | 0  | 0%   |
| Coyote Bush Scrub                   | 7.5   | 0  | 0%   |
| Developed                           | 23.4  | 5.3  | 23%  |
| Diegan Coastal Sage Scrub           | 178.2   | 1.9  | 1%   |
| Diegan Coastal Sage Scrub/Chaparral | 49.3  | 0  | 0%   |
| Disturbed Habitat                   | 11.9  | 2  | 17%  |
| Disturbed Wetland                   | 1.1   | 0  | 0%   |
| Eucalyptus Woodland                 | 19.1  | 0  | 0%   |
| Nonnative Grassland                 | 33.1  | 0  | 0%   |
| Open Water                          | 40.1  | 15   | 37%  |
| Saltpan/Open Water                  | 37  | 2  | 5%   |
| Sandbar Willow Scrub                | 8.9   | 0  | 0%   |
| Southern Willow Scrub               | 61.3  | 1.4  | 2%   |
| Tidal Mud Flat/Open Water           | 63.1  | 2.3  | 4%   |
| <b>Grand Total</b>                  | <b>960.2</b>  | <b>50.9</b>  | <b>5%</b>                                      |

BSA = Biological Study Area

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## Indirect Impacts

Short-term indirect impacts associated with Alternative 1A would be less than Alternative 2A. No significant or substantially adverse indirect impacts to vegetation communities would result with project implementation.

### **Long-term**

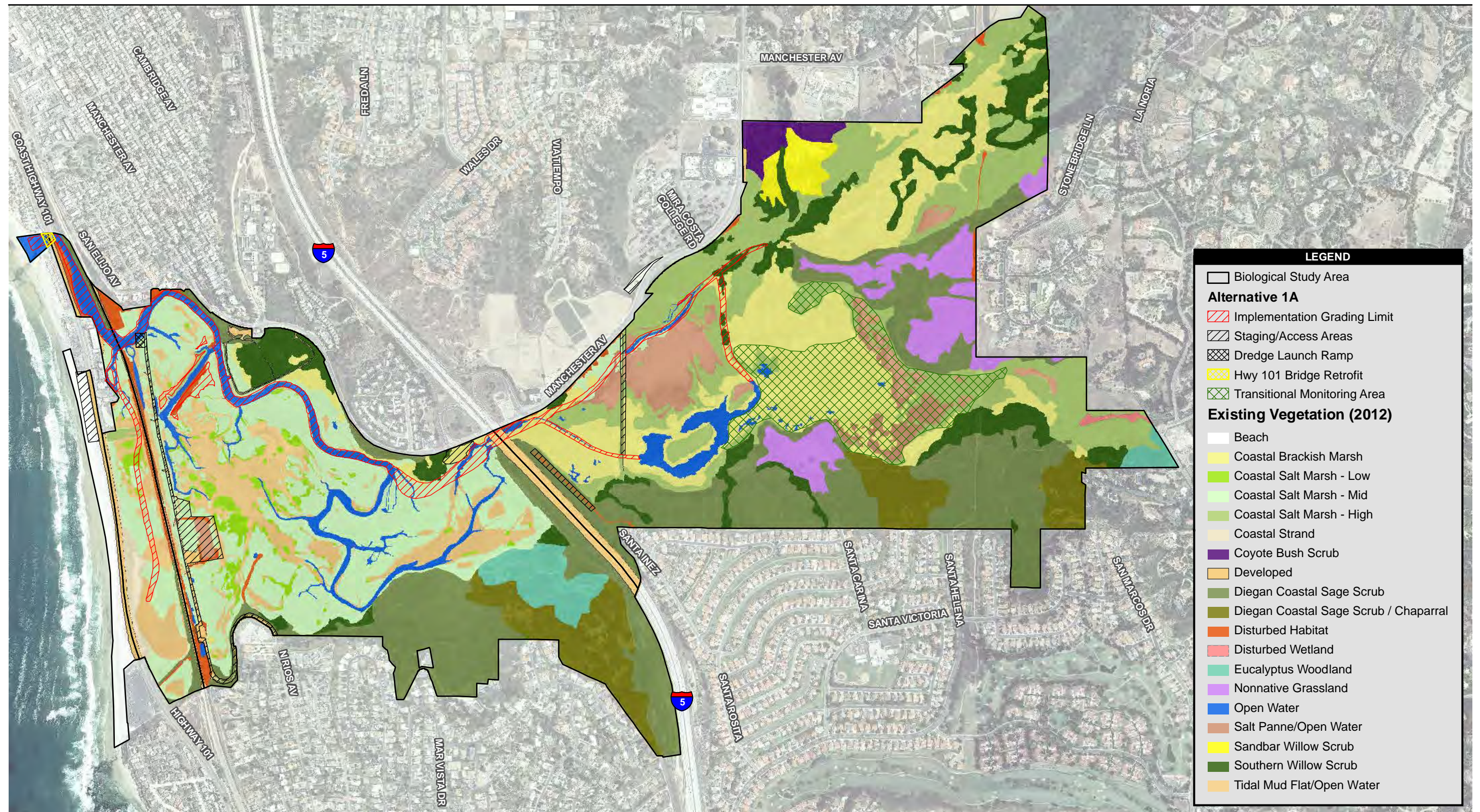
Long-term changes in vegetation (5–10 years post-restoration) would occur from implementation of Alternative 1A, as shown in Table 4-2 and Figure 1-4. Within 5–10 years following restoration, habitats are expected to have substantially recovered and matured. The overall acreage of sensitive habitats within the lagoon would remain approximately 960 acres. However, changes between sensitive vegetation in the lagoon would occur with dredging, grading, and improvements to hydrologic function.

Alternative 1A proposes modest change to existing conditions within the lagoon. This alternative emphasizes enhancement of existing tidal channels and creation of new tidal channels and therefore providing increased tidal flows in the three lagoon basins. Alternative 1A would utilize the existing tidal inlet, create a north-south-trending tidal channel in the west basin; create a new channel linking the central basin and the east basin beneath I-5; and enhance existing tidal channels in the east basin.

Retention of the current inlet location combined with minimal grading would result in a slight increase in tidal prism and tidal range compared to existing conditions. This slight increase may result in improved water quality throughout the lagoon, and an increase in the area of tidally influenced habitats. A portion of the central basin currently functioning as intertidal mudflat would continue to transition to mid-salt marsh under this alternative due to relatively high site elevations combined with minimal grading and better tidal drainage, which leads to less frequent tidal inundation of existing mudflats.

Alternative 1A differs substantially from Alternative 1B and Alternative 2A, when comparing changes in habitats over existing conditions. With implementation of Alternative 1A, mudflat and open water/channels/basins would substantially decrease over existing conditions. Creation of man-made transitional habitats would be limited to 2 acres. Under Alternative 1A, salt marsh would substantially increase over existing conditions. Saltpan, freshwater/brackish marsh, and riparian habitats would be negligibly reduced. As with all proposed alternatives, the overall acreage of habitat available for sensitive species would remain unchanged with Alternative 1A. In addition, habitats that remain unchanged are expected to benefit from the improved hydrologic function of the lagoon.





Source: SANDAG 2012; MoffattNichol; AECOM 2013

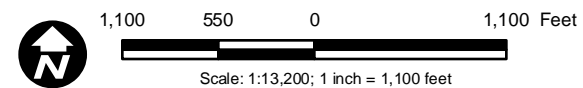


Figure 4-7

Alternative 1A Impacts to Vegetation Communities



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As described in Chapter 1.0, the lagoon habitat is rapidly transitioning over time, with continued loss of mudflat and rapid increase in salt marsh. Rapid transition to salt marsh results in a reduction in available foraging habitat for sensitive and nonsensitive birds. This has the potential for significant ecological changes in the lagoon and is expected to dramatically change the diversity and density of wildlife that the lagoon is able to continue to support. With implementation of Alternative 1A, the project would result in improved hydrologic function, but it would not increase foraging habitat or reverse the rapid changes that are occurring under existing conditions. Species-specific impacts associated with the changes proposed under Alternative 1A are evaluated in Section 4.4.3. With improved lagoon ecology and no overall loss of lagoon resources, impacts to sensitive vegetation communities with project implementation of Alternative 1A are considered less than significant and not substantially adverse.

Long-term indirect changes to the vegetation communities may occur as a result of restoration activities. Restoration would improve water quality, which is expected to have a positive effect on the lagoon. Less change to vegetation communities is expected under Alternative 1A as compared to Alternative 2A and Alternative 1B. Regardless, any changes in habitat are anticipated to be neutral or beneficial to the lagoon and are therefore considered less than significant and not substantially adverse.

#### USFWS Critical Habitat

No long-term significant or substantially adverse impacts to USFWS critical habitat are anticipated with implementation of Alternative 1A.

#### Essential Fish Habitat

Construction of Alternative 1A would result in similar long-term beneficial impacts to EFH as discussed for Alternative 2A and Alternative 1B. This alternative would create additional acreages of open water, tidal channels, and/or mudflat habitat, as well as enhance conditions of existing subtidal habitat by increasing tidal influence within the lagoon. Although lower amounts of subtidal habitat would be created under this alternative compared to the other alternatives, this additional acreage of habitat would still benefit EFH. No long-term significant or substantially adverse impact to EFH is anticipated with implementation of Alternative 1A.

### **4.4.2 Jurisdictional Waters and Wetlands**

The short-term temporary and long-term permanent impacts resulting from the implementation of Alternative 1A would be smaller than those discussed for Alternative 2A and Alternative 1B, due to the reduction in area impacted by construction under this alternative (Table 4-11). Of the

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approximately 620 acres of wetlands, approximately 37.8 acres would be directly impacted by construction.

The amounts of jurisdictional waters and wetlands are expected to be similar to existing conditions following implementation of Alternative 1A. However, Alternative 1A would result in up to 2 acres of permanent impacts to jurisdictional waters and wetlands of the U.S. and state due to the construction of the man-made transitional habitat within the central basin. This small amount of permanent loss would be immediately offset by the enhanced wetland conditions and increased diversity of jurisdictional waters and wetlands within the lagoon. For example, the main tidal channel would be extended farther into the east basin, and existing constricted channel connections would be cleared and enlarged allowing for an increase in tidal influence compared to existing conditions. The short-term and long-term (direct and indirect) impacts resulting from the implementation of Alternative 1A would be less than those discussed for Alternative 2A and are considered less than significant.

#### **4.4.3 Sensitive Species**

##### **4.4.3.1 Flora**

#### **Federally Listed and State-Listed Species**

No federally listed or state-listed rare, threatened, or endangered plant species occur within the areas proposed for restoration. As with Alternative 2A and Alternative 1B, Del Mar manzanita and Orcutt's goldenbush occur in uplands habitat and would not be affected by the proposed project.

Approximately three individuals of southwestern spiny rush (CNPS List 4.2) are within the grading limits of Alternative 1A and would be directly impacted. As noted in Alternative 2A and Alternative 1B, this direct impact is not considered significant, given that there are several hundred individuals scattered throughout the mid- and high-salt marsh habitats within the lagoon. The large population of southwestern spiny rush is expected to persist within the lagoon, as the majority of the mid- and high-salt marsh habitats would remain intact. Therefore, no significant or substantially adverse impacts to sensitive plant populations are anticipated with construction of Alternative 1A.

#### **Nonlisted Plant Species**

Impacts to nonlisted plant species are similar to Alternative 2A. Alternative 1B is not expected to result in the decline of any species below self-sustaining levels; impacts are considered less than

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significant and not substantially adverse. In addition, no long-term impacts to nonlisted plant species are expected as the restoration project and the corresponding improvements to ecological conditions are considered beneficial to all 28 species.

#### **4.4.3.2 Fauna**

##### **Federally Listed and State-Listed Wildlife Species**

There is the potential for both short-term/temporary effects as well as long-term/permanent effects associated with the implementation of Alternative 1A. These effects may be considered negative (impact) or positive (benefit); both are discussed related to the seven state-listed and/or federally listed species described for Alternative 2A.

##### **Short term**

Direct short-term/temporary effects may include the short-term loss of nesting and/or foraging habitat as well as noise impacts as a result of construction activities.

Impacts resulting from Alternative 1A would be similar in nature to Alternative 2A, but to a much lesser extent. Alternative 1A requires the least grading, with 49.4 acres of the habitat within the 960-acre BSA (5 percent) directly impacted as part of restoration grading activities. This alternative was designed to minimize impacts to existing habitat while increasing tidal circulation to the east basin. As part of the restoration effort, nesting or foraging habitat would be temporarily impacted (i.e., graded or dredged) during construction, which may affect listed species that use the lagoon and rely on this habitat. Table 4-12 presents the temporary impacted acreages and post-restoration acreages of suitable habitat for the evaluated listed species, including nesting and foraging habitat. Unlike Alternative 2A and Alternative 1B, Alternative 1A would not be phased but would occur over a single 9-month time period. Within that single phase, construction activities would still be phased so that across the three lagoon basins some habitat areas would be preserved at any given time. This would allow for species refugia during construction. In addition, vegetation removal activities would be restricted to outside of the nesting season.

**Table 4-12**  
**Alternative 1A Impact Acreage of Suitable Habitat for Listed Bird Species**

| <b>Species</b>                 | <b>Habitat Suitability*</b> | <b>Habitat Type</b>                  | <b>Existing Habitat Acres</b> | <b>Total Acres Existing Habitat Directly Impacted by Grading***</b> | <b>Percent Existing Habitat Directly Impacted</b> |
|--------------------------------|-----------------------------|--------------------------------------|-------------------------------|---|---|
| light-footed clapper rail      | Nesting                     | Coastal Brackish Marsh               | 131.5                         | 4.9   | 4%  |
|                                |                             | Coastal Salt Marsh – Low             | 13.3                          | 0.4   | 3%  |
|                                |                             | Total Nesting                        | 144.8                         | 5.3   | 4%  |
|                                | Foraging                    | Mudflats                             | 63.1                          | 2.3   | 4%  |
|                                |                             | Coastal Salt Marsh – Mid             | 141.4                         | 11.4  | 8%  |
|                                |                             | Coastal Salt Marsh – High            | 120                           | 2.3   | 2%  |
|                                |                             | Total Foraging                       | 324.5                         | 16  | 5%  |
| California least tern          | Nesting                     | Saltpan                              | 36.9                          | 2   | 5%  |
|                                |                             | Coastal Strand                       | 5                             | 0   | 0%  |
|                                |                             | Nesting Area**                       | 0                             | 0   | 0%  |
|                                |                             | Total Nesting                        | 41.9                          | 2   | 5%  |
|                                | Foraging                    | Subtidal/Channels                    | 40.1                          | 14.3  | 36%   |
|                                |                             | Beach                                | 15                            | 0   | 0%  |
|                                |                             | Total Foraging                       | 55.1                          | 14.3  | 26%   |
| western snowy plover           | Nesting                     | CDFW dike                            | 0.4                           | 0.4   | 100%  |
|                                |                             | Saltpan                              | 36.9                          | 2   | 5%  |
|                                |                             | Coastal Strand                       | 5                             | 0   | 0%  |
|                                |                             | Nesting Area**                       | 0                             | 0   | 0%  |
|                                |                             | Total Nesting                        | 42.3                          | 2.4   | 6%  |
|                                | Foraging                    | Mudflats                             | 63.1                          | 2.3   | 4%  |
|                                |                             | Beach                                | 15                            | 0   | 0%  |
|                                |                             | Total Foraging                       | 78.1                          | 2.3   | 3%  |
| coastal California gnatcatcher | Nesting/Foraging            | Diegan Coastal Sage Scrub            | 178.1                         | 1.9   | 1%  |
|                                |                             | Diegan Coastal Sage Scrub/ Chaparral | 49.3                          | 0   | 0%  |
|                                |                             | Coyote Bush Scrub                    | 7.5                           | 0   | 0%  |
|                                |                             | Total Nesting/Foraging               | 234.9                         | 1.9   | 1%  |
| least Bell's vireo             | Nesting/Foraging            | Sandbar Willow Scrub                 | 9                             | 0   | 0%  |
|                                |                             | Southern Willow Scrub                | 61.4                          | 1.4   | 2%  |
|                                |                             | Total Nesting/Foraging               | 70.4                          | 1.4   | 2%  |
| southwestern willow flycatcher | Nesting/Foraging            | Southern Willow Scrub                | 61.4                          | 1.4   | 2%  |
|                                |                             | Total Nesting/Foraging               | 61.4                          | 1.4   | 2%  |



| Species                    | Habitat Suitability* | Habitat Type              | Existing Habitat Acres | Total Acres Existing Habitat Directly Impacted by Grading*** | Percent Existing Habitat Directly Impacted |
|----------------------------|----------------------|---------------------------|------------------------|--|--|
| Belding's savannah sparrow | Nesting              | Coastal Salt Marsh – Mid  | 141.4                  | 11.4   | 8%   |
|                            |                      | Coastal Salt Marsh – High | 120                    | 2.3  | 2%   |
|                            |                      | Total Nesting             | 261.4                  | 13.7   | 5%   |
|                            | Foraging             | Coastal Salt Marsh – Low  | 13.3                   | 0.4  | 3%   |
|                            |                      | Total Foraging            | 13.3                   | 0.4  | 3%   |

CDFW = California Department of Fish and Wildlife

\*Nesting habitat is considered suitable for both breeding and foraging activities, while habitat identified as "Foraging" is not expected to support breeding activities.

\*\*Under existing conditions, a portion of the nesting area is classified as saltpan.

\*\*\* Please note that no temporary inundation impacts are associated with Alternative 1A as extensive controlled inundation would not be required.

### Coastal California Gnatcatcher

Coastal California gnatcatcher have been observed along the periphery of San Elijo Lagoon within the sage scrub and chaparral habitats. As described for Alternative 2A, an access road along the southwest corner of central basin would be improved to accommodate construction vehicular traffic. There is the potential to impact nesting coastal California gnatcatcher in this area during vegetation removal. To avoid this potential impact, vegetation would be cleared outside of the bird nesting season. Temporary impacts to gnatcatcher are not considered substantial and would not result in a decline in the local population below self-sustaining levels.

### Least Bell's Vireo and Southwestern Willow Flycatcher

Short-term direct impacts to least Bell's vireo and southwestern willow flycatcher as a result of Alternative 1A are less than those described for Alternative 2A as long periods of controlled inundation are not required for construction. Both species have been observed in low numbers foraging primarily within the southern willow scrub habitat. Construction of Alternative 1A would directly impact 1.4 acres (2 percent) of the southern willow scrub riparian habitat within the lagoon as a result of grading (Table 4-12). As vegetation would be removed outside of the breeding season and both species use the site primarily for foraging during summer months, the short-term impact to 2 percent of the southern willow scrub riparian habitat is not substantial and would not result in a decline in the local population below self-sustaining levels. Therefore, short-term direct impacts to least Bell's vireo and southwestern willow flycatcher would be less than significant and not substantially adverse.

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### California Least Tern and Western Snowy Plover

Impacts to both California least tern and western snowy plover are similar as those described for Alternative 2A, including impacts to foraging habitat for both species as a result of grading and habitat conversion (Table 4-12). Impacts to potential nesting habitat is minimal with 2 acres of saltpan and a small portion (0.4 acre) of the CDFW dike impacted. Short-term direct impacts would occur on 2 acres of mudflat (foraging habitat for western snowy plover) and 14.3 acres of subtidal/channels (foraging habitat for California least tern). These impacts to foraging habitat would be phased across the three lagoon basins, and within each basin, so that contiguous areas of foraging habitat would remain at any given time. Unlike Alternative 2A and Alternative 1B, phasing would occur over a shorter period of time as construction would take 9 months instead of 3 years. Although short-term impacts to foraging habitat would occur, short-term benefits are also expected as lagoon conditions improve. The improved conditions would result in higher productivity in the subtidal habitat and direct benefits to birds that forage on them, such as the California least tern and other diving birds. Direct short-term/temporary impacts from Alternative 1A to California least tern and western snowy plover would be less than significant and not substantially adverse.

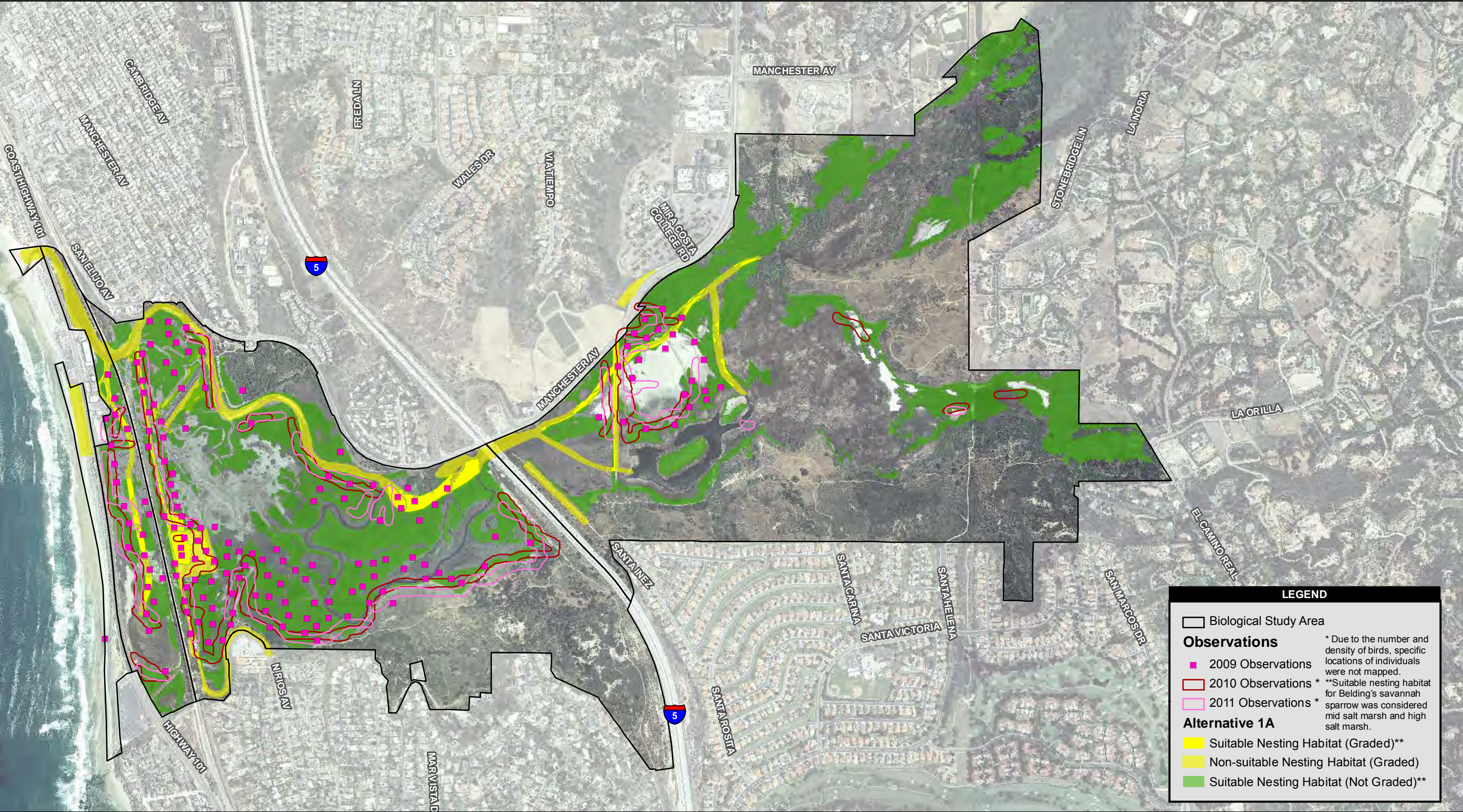
### Belding's Savannah Sparrow

Under Alternative 1A, impacts to Belding's savannah sparrow would be similar to Alternative 2A (although fewer) with direct impacts to nesting and foraging habitat. Impact acreages are presented in Table 4-12. Alternative 1A would impact 11.4 acres of mid-marsh and 2.3 acres of high-marsh habitat across the three basins (Figure 4-8). A total of 13.7 acres out of 261.4 acres (5 percent) of suitable nesting habitat for Belding's savannah sparrow would be directly impacted. The loss of habitat is an impact; however, it is not considered a substantial impact (i.e., greater than 50 percent of the habitat or greater than 50 percent of the population) to the existing population of Belding's savannah sparrow. The project would further minimize impacts by removing all vegetation outside of the breeding season, use of a biological monitor, and a habitat enhancement plan. Direct short-term/temporary impacts from Alternative 1A to Belding's savannah sparrow would be less than significant and not substantially adverse.

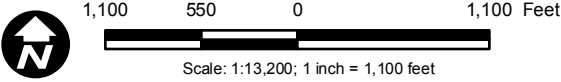
### Light-footed Clapper Rail

Short-term/temporary direct impacts to light-footed clapper rail from implementation of Alternative 1A would be similar but substantially less than Alternative 2A including direct impacts to 5.3 acres (4 percent) of existing suitable nesting habitat (Table 4-9 and Figure 4-9). These primary direct impacts are associated with the channel widening and expansion of the channel into the east basin where light-footed clapper rail occupy brackish marsh habitat. The





Source: SANDAG 2012; Patton 2011; AECOM 2014



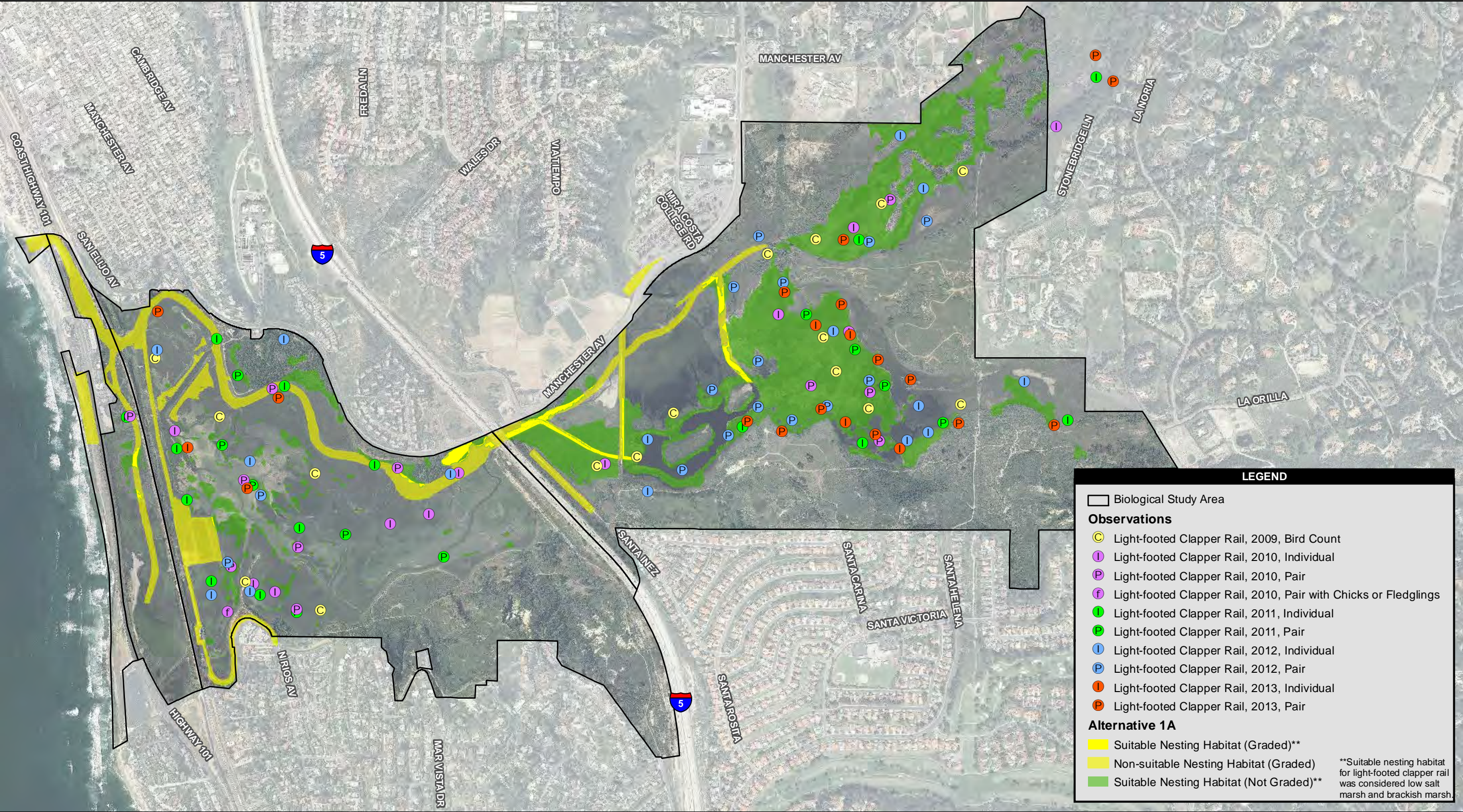
**Figure 4-8**  
**Belding's Savannah Sparrow**  
**Suitable Nesting Habitat Impact Analysis, Alternative 1A**



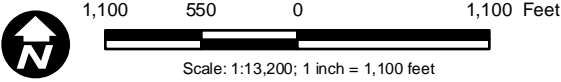
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Source: Landis 2010; Patton 2012; AECOM 2012



**Figure 4-9**  
**Light-footed Clapper Rail**  
**Suitable Nesting Habitat Impact Analysis, Alternative 1A**



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loss of habitat is an impact; however, it is not considered a substantial impact (i.e. greater than 50 percent of the habitat or greater than 50 percent of the population) to the existing population of light-footed clapper rail. The project has proposed design features to minimize impacts, including removal of all vegetation outside of the bird breeding season, use of a biological monitor, and a habitat enhancement plan. With implementation of project design features, temporary direct impacts to sensitive species from habitat loss (both nesting and foraging) are considered less than significant and not substantially adverse.

### Indirect

Indirect short-term/temporary effects from Alternative 1A may include degraded water quality, disturbed unconsolidated sediment, and prolonged inundation. These impacts are similar to those described for Alternative 2A (excluding increased exposure to predators) but to a lesser degree as the footprint is substantially smaller.

During construction, sensitive birds using the lagoon may be exposed to degraded water quality resulting from dredging and other sediment-disturbing activities. As with Alternative 2A and Alternative 1B, the project would implement BMPs to reduce water quality impacts and the indirect effects to sensitive birds. With implementation of project design features, temporary indirect impacts to sensitive species from water quality and inundation are considered less than significant and not substantially adverse.

Short-term construction noise could impact sensitive species via the diesel or electric dredge and other large construction equipment. Temporary noise impacts to listed species would be similar to those previously described for Alternative 2A and Alternative 1B. However, under Alternative 1A, no impacts to the east basin would occur, and noise would be limited to the west of I-5. Temporary indirect impacts associated with construction noise in the west basin are considered significant and substantially adverse.

As with Alternative 2A, the construction vehicle route at North Rios Avenue would experience increased noise. Two coastal California gnatcatchers have been observed along this existing access route. They are accustomed to vehicular traffic in this area from other maintenance vehicles and are not expected to be substantially affected by a minor increase in traffic volume and the associated vehicular noise. Noise impacts to birds from vehicular traffic are therefore considered less than significant and not substantially adverse.

### **Long term**

Direct long-term/permanent effects include the active conversion of nesting and/or foraging habitat to another habitat type, modified lagoon conditions, and long-term maintenance and operation.

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Habitat for sensitive species would be changed and/or converted as a result of this alternative (Table 4-13). This change may include a direct increase or decrease in the total acreage of a specific habitat type post-restoration. This change may result from grading, modified hydrology, or elevated high tide line. Implementation of Alternative 1A would extend tidal hydrology to the east basin and result in a modified high tide line of +3.8 feet NGVD, which is moderately higher than the existing high tide line of +3.5 feet NGVD.

#### Least Bell's Vireo and Southwestern Willow Flycatcher

Both least Bell's vireo and southwestern willow flycatcher utilize riparian habitat on-site for foraging habitat. Southwestern willow flycatcher are not known to breed on-site. Least Bell's vireo have not been documented but there is the potential that successful breeding has occurred. Alternative 1A would actively convert 4 percent (2.7 acres) of the riparian habitat within the lagoon BSA as a result of the expansion of tidal channels in the east basin and widening of tidal channels in the central basin (Table 4-13). The loss of riparian habitat is not substantial and would not result in a decline in the local populations of least Bell's vireo and southwestern willow flycatcher below self-sustaining levels.

#### Coastal California Gnatcatcher

Coastal California gnatcatcher are observed along the periphery of San Elijo Lagoon within the sage scrub and chaparral habitats. As with Alternative 2A, the existing access road at North Rios Avenue would need to be widened to accommodate construction vehicular traffic. Alternative 1A would permanently impact 0.7 acre of coastal sage scrub habitat with road enhancement in addition to 1.2 acres within the lagoon equating to 1 percent of the total nesting habitat in the BSA. Expansive contiguous undisturbed upland sage habitat would still be present along most lagoon hillsides. Permanent impacts to gnatcatcher habitat associated with the road enhancement and lagoon restoration would not be considered substantial because they would not result in a decline in the local population below self-sustaining levels.

#### California Least Tern and Western Snowy Plover

Both California least tern and western snowy plover are annually documented foraging and roosting at San Elijo Lagoon. Neither species has successfully nested on-site since 2002. Alternative 1A would permanently decrease suitable nesting habitat for California least tern by 2 acres (5 percent of suitable nesting habitat) and decrease suitable nesting habitat for western snowy plover by 2.4 acres (6 percent of suitable nesting habitat) (Table 4-13). As neither species currently breeds on-site, the loss of nesting habitat does not substantially affect either species. In addition, implementation of a predator control program may also improve conditions of the suitable nesting habitat.



**Table 4-13**  
**Alternative 1A Existing and Post-Construction Acreage**  
**of Suitable Habitat for Listed Bird Species**

| Species                   | Habitat Suitability* | Habitat Type              | Existing Habitat Acres | Habitat Acreage Post-Restoration | Net Change in Habitat Acreage Post-Restoration | Percent Change Post-Restoration |
|---------------------------|----------------------|---------------------------|------------------------|----------------------------------|--|---------------------------------|
| light-footed clapper rail | Nesting              | Coastal Brackish Marsh    | 131.5                  | 122                              | -9.5   | -7%                             |
|                           |                      | Coastal Salt Marsh – Low  | 13.3                   | 44                               | 30.7   | 231%                            |
|                           |                      | Total Nesting             | 144.8                  | 166                              | 21.2   | 15%                             |
|                           | Foraging             | Mudflats                  | 63.1                   | 25                               | -38.1  | -60%                            |
|                           |                      | Coastal Salt Marsh – Mid  | 141.4                  | 140                              | -1.4   | -1%                             |
|                           |                      | Coastal Salt Marsh – High | 120                    | 145                              | 25   | 21%                             |
|                           |                      | Total Foraging            | 324.5                  | 310                              | -14.5  | -4%                             |
| California least tern     | Nesting              | Saltpan                   | 36.9                   | 35                               | -1.9   | -5%                             |
|                           |                      | Coastal Strand            | 5                      | 5                                | 0  | 0%                              |
|                           |                      | Nesting Area**            | 0                      | 2                                | 2  | 200%                            |
|                           |                      | Total Nesting             | 41.9                   | 42                               | 0.1  | 0%                              |
|                           | Foraging             | Subtidal/Channels         | 40.1                   | 34                               | -6.1   | -15%                            |
|                           |                      | Beach                     | 15                     | 15                               | 0  | 0%                              |
|                           |                      | Total Foraging            | 55.1                   | 49                               | -6.1   | -11%                            |
| western snowy plover      | Nesting              | CDFW dike                 | 0.4                    | 0                                | -0.4   | -100%                           |
|                           |                      | Saltpan                   | 36.9                   | 35                               | -1.9   | -5%                             |
|                           |                      | Coastal Strand            | 5                      | 5                                | 0  | 0%                              |
|                           |                      | Nesting Area**            | 0                      | 2                                | 2  | 200%                            |
|                           |                      | Total Nesting             | 42.3                   | 42                               | -0.3   | -1%                             |
|                           | Foraging             | Mudflats                  | 63.1                   | 25                               | -38.1  | -60%                            |
|                           |                      | Beach                     | 15                     | 15                               | 0  | 0%                              |
|                           |                      | Total Foraging            | 78.1                   | 40                               | -38.1  | -49%                            |

| Species                        | Habitat Suitability* | Habitat Type                        | Existing Habitat Acres | Habitat Acreage Post-Restoration | Net Change in Habitat Acreage Post-Restoration | Percent Change Post-Restoration |
|--------------------------------|----------------------|-------------------------------------|------------------------|----------------------------------|--|---------------------------------|
| coastal California gnatcatcher | Nesting/Foraging     | Diegan Coastal Sage Scrub           | 178.1                  | 178.1                            | 0  | 0%                              |
|                                |                      | Diegan Coastal Sage Scrub/Chaparral | 49.3                   | 49.3                             | 0  | 0%                              |
|                                |                      | Coyote Bush Scrub                   | 7.5                    | 7.5                              | 0  | 0%                              |
|                                |                      | Total Nesting/Foraging              | 234.9                  | 234.9                            | 0  | 0%                              |
| least Bell's vireo             | Nesting/Foraging     | Sandbar Willow Scrub                | 9                      | 8.9                              | -0.06  | -1%                             |
|                                |                      | Southern Willow Scrub               | 61.4                   | 58.8                             | -2.7   | -4%                             |
|                                |                      | Total Nesting/Foraging              | 70.4                   | 67.7                             | -2.7   | -4%                             |
| southwestern willow flycatcher | Nesting/Foraging     | Southern Willow Scrub               | 61.4                   | 58.8                             | -2.7   | -4%                             |
|                                |                      | Total Nesting/Foraging              | 61.4                   | 58.8                             | -2.7   | -4%                             |
| Belding's savannah sparrow     | Nesting              | Coastal Salt Marsh – Mid            | 141.4                  | 124                              | -17.4  | -12%                            |
|                                |                      | Coastal Salt Marsh – High           | 120                    | 145                              | 25   | 21%                             |
|                                |                      | Total Nesting                       | 261.4                  | 269                              | 7.6  | 3%                              |
|                                | Foraging             | Coastal Salt Marsh – Low            | 13.3                   | 44                               | 30.7   | 231%                            |
|                                |                      | Total Foraging                      | 13.3                   | 44                               | 30.7   | 231%                            |

CDFW = California Department of Fish and Wildlife

\*Nesting habitat is considered suitable for both breeding and foraging activities, while habitat identified as “Foraging” is not expected to support breeding activities.

\*\*Under existing conditions, a portion of the nesting area is classified as saltpan.

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### Belding's Savannah Sparrow

As depicted in Table 4-13, Alternative 1A would ultimately increase available nesting habitat for Belding's savannah sparrow by 7.6 acres, which equates to a gain of 5 percent compared to existing conditions. The greatest increase is within the central basin where mid-marsh is being replaced with high-marsh habitat. This increase in nesting habitat would be considered a benefit to the local population. Although nesting acreage would increase, Alternative 1A would have a minimal effect on lagoon condition and so the increased habitat would still be of moderate quality. Implementation of Alternative 1A would ultimately benefit the Belding's savannah sparrow population at San Elijo Lagoon and no long-term significant or substantially adverse impacts are expected.

### Light-footed Clapper Rail

Light-footed clapper rail nesting and foraging habitat would be modified as part of Alternative 1A. Post-restoration, there would be a net gain of 21.2 acres of nesting habitat acreage for light-footed clapper rail, which equates to a gain of 15 percent when compared to existing conditions. The greatest increase is within the central basin where mudflat would continue to convert to low-marsh habitat. In the east basin, a portion of the existing brackish marsh (9.5 acres) would also be replaced by subtidal and low-marsh habitat. Although brackish marsh would be reduced, the preferred habitat of clapper rail is low-marsh, which is currently limited in the lagoon.

In addition to affecting habitat acreage, the changes to lagoon hydrology under Alternative 1A would improve the condition of the remaining foraging and nesting habitat for light-footed clapper rail. Foraging habitat would have a small net decrease in total acreage (4 percent). This can be deceptive, however, as mudflat, another important foraging habitat, would decrease by 60 percent as a result of the expansion of low-marsh and mid-marsh habitat. The net gain of nesting habitat is considered a benefit; however, the reduction in a preferred foraging habitat (i.e., mudflat) would be a negative impact. Implementation of Alternative 1A would not substantially affect the sustainability of the clapper rail population within the lagoon and, in fact, may ultimately benefit the population if nesting habitat is considered more limiting than foraging habitat. Therefore, no long-term significant or substantially adverse impacts to clapper rail would result with implementation of Alternative 1A.

As part of the implementation of Alternative 1A, long-term monitoring and maintenance would occur, which has the potential to impact sensitive birds in the lagoon. Avoidance measures would be included in the adaptive management, maintenance, and monitoring program. Therefore, long-term monitoring and maintenance activities are not expected to have a substantial effect on any sensitive species and impacts are considered less than significant and not substantially adverse.

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## Indirect

Indirect long-term/permanent effects include the passive transition of nesting and/or foraging habitat to another habitat type, increased potential for invasive species, and changes to water quality.

Habitat above the high tide line, within the transitional area, may passively transition over a long period of time. The transitional area is considered to begin at the high tide line and extend up to 2+ feet above the high tide line. For Alternative 1A, this area is found between +3.8 feet NGVD and +5.8 feet NGVD. Passive transition of habitat within the new natural transitional area is possible although unpredictable. The greatest passive habitat change would be expected in the east basin where the channel would be expanded and tidal exchange introduced. Over time, this area may change from brackish marsh and saltpan habitat to salt marsh habitat. Indirect impacts to sensitive species resulting from passive unpredictable changes to the new transitional area are not considered substantial.

It is possible that reduced periods of saturation and increased salinity may make transitional areas more prone to invasion by nonnative species. As part of the post-construction habitat monitoring and maintenance program for this project, the occurrence of these invasive species would be closely monitored. Maintenance would regularly include treatments to limit the possibility of invasion. Indirect impacts to sensitive species resulting from invasive species are not considered substantial.

As described for Alternative 2A, indirect changes to lagoon condition are expected as a result of Alternative 1A and the corresponding improvement to tidal hydrology (i.e., circulation, turnover, freshwater export, etc.). The magnitude of the improved conditions would be less than under Alternative 2A or Alternative 1B as the improvement to tidal expression is less for Alternative 1A. The indirect improvement to water quality would benefit sensitive species.

With implementation of project design features and the net benefits of the restoration project, indirect permanent impacts to sensitive species from passive transition of nesting and/or foraging habitat and invasive species are considered less than significant and not substantially adverse.

## **Nonlisted Special-status Wildlife Species**

Impacts to nonlisted special-status wildlife species will be less than Alternative 2A and Alternative 1B as the extent of grading is lower and controlled inundation is not required. Short-term impacts to migratory and nonresident species are considered less than significant and not substantially adverse. No long-term impacts to migratory and nonresident wildlife species are



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expected as the restoration project and the corresponding improvements to ecological conditions are considered beneficial to all 87 species, both resident and migratory.

#### **4.4.4 Wildlife Corridors/Connectivity**

Alternative 1A would have similar temporary and short-term impacts to wildlife corridors and connectivity as discussed for Alternative 2A and Alternative 1B. However, less construction is proposed under this alternative; therefore, the potential to impede wildlife movement would be less compared to the other alternatives. No long-term impacts are anticipated; the project area would continue to function not as a regional corridor, but as a large area of natural open space that would allow for wildlife movement and connectivity similar to existing conditions. Therefore, no significant or substantially adverse impacts to wildlife movements or connectivity are anticipated with implementation of Alternative 1A.

#### **4.4.5 Local Ordinances/Policies/Adopted Plans**

Similar to Alternative 2A, all restoration, maintenance and monitoring plans prepared for Alternative 1A would be prepared in accordance with the goals of these regional conservation plans, and in consultation with the wildlife agencies. The project is consistent with the goals and objectives of both the MHCP and draft North County MSCP. Therefore, no significant or substantially adverse impact would result with implementation of Alternative 1A.

### **4.5 NO PROJECT/NO FEDERAL ACTION ALTERNATIVE**

This alternative would not directly modify the lagoon, inlet, or Highway 101, although modifications would occur by others to the NCTD Railroad and I-5. As such, temporary construction impacts would not occur. No sensitive plant or animal species detected within the project area would be directly impacted and the amount of jurisdictional waters and wetlands would not change. The project is, however, designed to modify the current trajectory of habitat conversion. Over the past decade, the lagoon has benefited from routine maintenance of the mouth, but it is still operating at a lower condition than would be possible if tidal expression were improved with restoration. Without restoration, water quality conditions and the wildlife community observed in the lagoon would continue to exist as a mid-level marine system with some diversity and richness. Given the constraints of tidal muting for the lagoon, higher diversity and increased EFH value are not expected without greater tidal expression; under the No Project/No Federal Action Alternative, habitat conversion is expected to trend toward a more monotypic system.

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This section discloses the anticipated habitat types in the future condition (at equilibrium), assuming continued management of the lagoon mouth by the SELC. It also addresses how habitat conversion may affect nesting and/or foraging habitat of sensitive animal species (no sensitive plant species would be affected). As these changes may be considered negative (impact) or positive (benefit), both are discussed.

#### **4.5.1 Sensitive Vegetation Communities**

Long-term changes in vegetation are anticipated to occur as shown in Table 4-14. Specifically, there would be a substantial reduction in mudflat and open water/tidal channels and basins, with an increase in overall salt marsh habitat, plus increases in low-and high-marsh and a decrease in mid-marsh communities. A rapid conversion of mudflat was observed between 2010 and 2012, with a gain of 13 acres of low-marsh (cordgrass dominated) habitat and a direct loss of mudflat. Mudflat is expected to continue to decrease to 29 acres at equilibrium (net loss 34 acres) (Table 4-14). This loss of mudflat corresponds to an increase in low-marsh habitat (37.7 acres). In addition, mid-marsh habitat would revert to high-marsh habitat, which would increase by 47 acres and a portion of the open water on-site would revert to mudflat.

All other habitats and land cover types would remain relatively the same under the No Project/No Federal Action Alternative and the present spectrum of environmental constraints would continue to limit the quality and productivity of the lagoon. The change in habitat from one sensitive vegetation community to another sensitive vegetation community does not, in itself, represent a significant biological impact. However, the No Project/No Federal Action Alternative would not improve lagoon ecology and the lagoon would not benefit from the improved water quality and increased habitat diversity provided by the SELRP.

#### **4.5.2 Rare, Threatened, or Endangered Animal Species**

Anticipated habitat conversion would result in a net gain of nesting habitat for both light-footed clapper rail (low-marsh) and Belding's savannah sparrow (high-marsh) but a loss of critical foraging habitat for western snowy plover (mudflat) and least tern (subtidal) in addition to other migratory birds that use the lagoon for foraging habitat. There would be little to no change in habitats that occur above the high tide line; therefore, no impacts to coastal California gnatcatcher, least Bell's vireo, and southwestern willow flycatcher are expected under the No Project/No Federal Action Alternative. Changes in marsh habitat from one type to another would benefit some species and impact other species.

**Table 4-14**  
**Existing Habitat and No Project/No Federal Action Habitat Acreage of Suitable Habitat for Listed Bird Species**

| Species                        | Habitat Suitability | Habitat Type                        | Habitat in Acres |                              |            | Percent Change |
|--------------------------------|---------------------|-------------------------------------|------------------|------------------------------|------------|----------------|
|                                |                     |                                     | Existing         | No Project/No Federal Action | Net Change |                |
| light-footed clapper rail      | Nesting             | Coastal Brackish Marsh              | 131.5            | 131                          | -0.5       | 0%             |
|                                |                     | Coastal Salt Marsh – Low            | 13.3             | 51                           | 37.7       | 283%           |
|                                |                     | Total Nesting                       | 144.8            | 182                          | 37.2       | 26%            |
|                                | Foraging            | Mudflats                            | 63.1             | 29                           | -34.1      | -54%           |
|                                |                     | Coastal Salt Marsh – Mid            | 141.4            | 107                          | -34.4      | -24%           |
|                                |                     | Coastal Salt Marsh – High           | 120              | 167                          | 47         | 39%            |
|                                |                     | Total Foraging                      | 324.5            | 303                          | -21.5      | -7%            |
| California least tern          | Nesting             | Saltpan                             | 36.9             | 36.9                         | 0          | 0%             |
|                                |                     | Coastal Strand                      | 5                | 5                            | 0          | 0%             |
|                                |                     | Nesting Area*                       | 0                | 0                            | 0          | 0%             |
|                                |                     | Total Nesting                       | 41.9             | 41.9                         | 0          | 0%             |
|                                | Foraging            | Subtidal/Channels                   | 40.1             | 24                           | -16.1      | -40%           |
|                                |                     | Beach                               | 15               | 15                           | 0          | 0%             |
|                                |                     | Total Foraging                      | 55.1             | 39                           | -16.1      | -29%           |
| western snowy plover           | Nesting             | CDFW dike                           | 0.4              | 0                            | -0.4       | -100%          |
|                                |                     | Saltpan                             | 36.9             | 36.9                         | 0          | 0%             |
|                                |                     | Coastal Strand                      | 5                | 5                            | 0          | 0%             |
|                                |                     | Nesting Area*                       | 0                | 0                            | 0          | 0%             |
|                                |                     | Total Nesting                       | 42.3             | 41.9                         | -0.4       | -1%            |
|                                | Foraging            | Mudflats                            | 63.1             | 29                           | -34.1      | -54%           |
|                                |                     | Beach                               | 15               | 15                           | 0          | 0%             |
|                                |                     | Total Foraging                      | 78.1             | 44                           | -34.1      | -44%           |
| coastal California gnatcatcher | Nesting/Foraging    | Diegan Coastal Sage Scrub           | 178.1            | 178.1                        | 0          | 0%             |
|                                |                     | Diegan Coastal Sage Scrub/Chaparral | 49.3             | 49.3                         | 0          | 0%             |
|                                |                     | Coyote Bush Scrub                   | 7.5              | 7.5                          | 0          | 0%             |
|                                |                     | Total Nesting/Foraging              | 234.9            | 234.9                        | 0          | 0%             |

| Species                        | Habitat Suitability | Habitat Type              | Habitat in Acres |                              |            | Percent Change |
|--------------------------------|---------------------|---------------------------|------------------|------------------------------|------------|----------------|
|                                |                     |                           | Existing         | No Project/No Federal Action | Net Change |                |
| least Bell's vireo             | Nesting/Foraging    | Sandbar Willow Scrub      | 9                | 9                            | 0          | 0%             |
|                                |                     | Southern Willow Scrub     | 61.4             | 60.4                         | -1         | -2%            |
|                                |                     | Total Nesting/Foraging    | 70.4             | 69.4                         | -1         | -1%            |
| southwestern willow flycatcher | Nesting/Foraging    | Southern Willow Scrub     | 61.4             | 60.4                         | -1         | -2%            |
|                                |                     | Total Nesting/Foraging    | 61.4             | 60.4                         | -1         | -2%            |
| Belding's savannah sparrow     | Nesting             | Coastal Salt Marsh – Mid  | 141.4            | 107                          | -34.4      | -24%           |
|                                |                     | Coastal Salt Marsh – High | 120              | 167                          | 47         | 39%            |
|                                |                     | Total Nesting             | 261.4            | 274                          | 12.6       | 5%             |
|                                | Foraging            | Coastal Salt Marsh – Low  | 13.3             | 51                           | 37.7       | 283%           |
|                                |                     | Total Foraging            | 13.3             | 51                           | 37.7       | 283%           |

CDFW = California Department of Fish and Wildlife

\*Under existing conditions, a portion of the nesting area is classified as saltpan.



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#### **4.5.3 Local Ordinances/Policies/Adopted Plans**

The MHCP and North County MSCP both refer to the opportunity for restoration at San Elijo Lagoon. While the No Project/No Federal Action Alternative represents a lost opportunity for enhancement to a preserve area designated within these plans, the lack of restoration does not specifically represent a conflict with these plans. Efforts for preserve management and monitoring would continue consistent with the goals and objectives of these plans.

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## CHAPTER 5.0

### SUMMARY OF CONCLUSIONS

The SELRP is, by design, a project for the long-term improvement of water quality and health/diversity of biological resources. Numerous design features are incorporated into the project to minimize impacts during construction, and most potential impacts to biological resources would be less than significant. However, during construction, significant impacts would result to sensitive vegetation communities and resident marsh birds where temporary loss of habitat would exceed 50 percent. In addition, short-term significant and substantially adverse impacts to birds may result from indirect noise impacts. No long-term significant or substantial adverse impacts would occur; ultimately, the noise levels would reduce to existing levels where these sensitive species are residents, and habitat diversity would facilitate stable populations of these species. A summary of lagoon impacts is provided in Table 5-1, by Alternative 2A, Alternative 1B, and Alternative 1A.

**Table 5-1**  
**Summary of Impacts to Biological Resources by Alternative**

| CEQA Threshold of Significance Category               |            |   | Alternative   |   |                                      |
|---|------------|---|---|---|--------------------------------------|
|   |            |   | Alternative 2A  | Alternative 1B  | Alternative 1A                       |
| Sensitive Riparian and Natural Vegetation Communities | Short Term | Sensitive Riparian and Natural Vegetation Communities | Significant Direct Impact (low-and mid-salt marsh, open water, saltpan, and tidal mudflats) | Significant Direct Impact (low-and mid-salt marsh, open water, saltpan, and tidal mudflats) | Less than significant (all habitats) |
|   |            | USFWS Critical Habitat                                | Less than significant   | Less than significant   | Less than significant                |
|   |            | EFH   | Less than significant   | Less than significant   | Not significant                      |
|   | Long Term  | Sensitive Riparian and Natural Vegetation Communities | Less than significant direct impact   | Less than significant direct impact   | Less than significant direct impact  |
|   |            | USFWS Critical Habitat                                | Less than significant   | Less than significant   | Less than significant                |
|   |            | EFH   | Less than significant   | Less than significant   | Not significant                      |
| Jurisdictional Waters and Wetlands                    | Short Term |   | Less than significant direct impact   | Less than significant direct impact   | Less than significant direct impact  |
|   | Long Term  |   | Less than significant   | Less than significant   | Less than significant                |

| CEQA Threshold of Significance Category   |            |                                 | Alternative   |   |  |
|---|------------|---------------------------------|---|---|--|
|   |            |                                 | Alternative 2A  | Alternative 1B  | Alternative 1A   |
| Sensitive Species                         | Short Term | Flora                           | Less than significant   | Less than significant   | No impact  |
|   |            | Fauna                           | Significant direct impact (Belding's)<br>Less than significant direct impact (clapper rail)<br>Significant indirect impact (construction noise) | Significant direct impact (Belding's)<br>Less than significant direct impact (clapper rail)<br>Significant indirect impact (construction noise) | Less than significant direct impact (Belding's, clapper rail, least tern, and snowy plover )<br>Significant indirect impact (construction noise) |
|   |            | Wildlife Corridors/Connectivity | Less than significant   | Less than significant   | Less than significant  |
|   | Long Term  | Flora                           | Less than significant   | Less than significant   | Less than significant  |
|   |            | Fauna                           | Less than significant direct impact (Belding's and clapper rail)<br>Less than significant indirect impact (transitional habitat)                | Less than significant direct impact (Belding's and clapper rail)<br>Less than significant indirect impact (transitional habitat)                | No direct impact<br>Less than significant indirect impact (transitional habitat)   |
|   |            | Wildlife Corridors/Connectivity | Less than significant   | Less than significant   | No impact  |
| Local Ordinances, Policies, Adopted Plans | Short Term |                                 | No impact   | No impact   | No impact  |
|   | Long Term  |                                 | No impact   | No impact   | No impact  |

EFH = Essential Fish Habitat; U.S. Fish and Wildlife Service



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## CHAPTER 6.0

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## **CHAPTER 7.0**

### **LIST OF PREPARERS AND CONTRIBUTORS**

Cindy Kinkade, Project Manager

Michelle Fehrensens, Senior Environmental Analyst/Biologist

Lindsay Teunis, Restoration Ecologist

Lawrence Honma, Marine Biologist

Michael Anguiano, Wildlife Biologist

Lance Woolley, Botanist

Lanika Cervantes, Wetland Biologist

Julia Groebner, Restoration Ecologist

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